HITACHI

MODEL VC-6041
DIGITAL STORAGE OSCILLOSCOPE

SERVICE MANUAL

File: H33

Hitachi Denshi, Ltd.

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N O T I C E

This Service Manual describes the most typical product of this model. If there are any specific differences between this Manual and the servicing unit, please contact Hitachi Denshi sales office in your area.

MODEL VC-6041
DIGITAL STORAGE OSCILLOSCOPE
Service Manual

1. SPECIFICATIONS

CRT

Type	Large 6" screen with internal graticule Approximate 12 kV acceleration potential
Phosphor	P31 standard
Graticule	8 x 10 div (1 div = 10 mm) internal graticule
Focussing	Possible (with automatic focus correction circuit)
Trace rotation	Present
Brightness adjustment	Possible
Scale illumination	Variable

Z-AXIS INPUT (INTENSITY MODULATION)

DC-coupled, positive-going signal decreases intensity:
5 Vp-p signal causes noticeable modulation at normal

Intensity	DC to 2 MHz
Input impedance	47 kohm (typ.)
Maximum input voltage	30 V (DC + peak AC)

VERTICAL DEFLECTION SYSTEM (2 identical channels)

Bandwidth and rise time	DC to at least 40 MHz and rise time 8.8 ns or less. DC to at least 7 MHz and rise time 50 ns or less at magnifier extends. The AC coupled lower-3 dB point is 10 Hz or less.
Deflection factor	5 mV/div to 5 V/div in 10 calibrated steps in a 1-2-5 sequence. Uncalibrated continuous control extends deflection factor to at least 12.5 V per division in the 5 V/div position.

	X5 MAG increases sensitivity of each deflection factor setting to 1 mV/div.
Accuracy	X1 : ±3 % X5 : ±5 %
Display modes	CH1, CH2 (normal or invert), Alternate, Chopped (approximate 250 kHz), Added
Input impedance	Approximately 1 Mohm in parallel with 30 pF
Maximum input voltage	300 V (DC + peak AC) or 500 Vp-p AC at 1 kHz or less
Input coupling	AC-GND-DC
DC offset	±1 to ±100 V (Uncalibrated when in V. UNCAL or/and V. MAG mode)
DC offset volt out	Provides the DC offset voltage

HORIZONTAL DEFLECTION SYSTEM

Sweep time	• Non storage mode 0.2 μs/div to 0.2 s/div (1-2-5 sequence of 19 steps) • Normal mode 10 μs/div to 0.2 s/div (1-2-5 sequence of 14 steps) • Repeat mode 0.2 μs/div to 5 μs/div (1-2-5 sequence of 5 steps) • Roll mode 500 ms/div to 20 s/div (1-2-5 sequence of 6 steps)
(Note:	Repeat mode is available only with repetitive waveforms)
Maximum sweep time	20 μs/div (at MAG x 10)
Sweep fine adjustment	2.5 times or more (Calibrated detent)
Accuracy	±3 %
Sweep magnifying	x10, Accuracy : ±5 %
Position adjustment	Possible

TRIGGERING SYSTEM

Trigger modes	Automatic, Normal, TV (TV-H or TV-V)
Trigger source	Internal (CH1, CH2, V-MODE) Line, External
Trigger slope	+, -
TV sync polarity	TV(-)

Triggering sensitivity and frequency

Frequency	Internal	External
20 Hz to 5 MHz	0.5 div	200 mV
5 MHz to 40 MHz	1.5 div	800 mV

TV-V sensitivity	SYNC section less 1 div or 1 V
AUTO low band	Approximately 30 Hz
Trigger coupling	AC : 20 Hz to full bandwidth
External trigger input impedance	Approximately 1 M-ohm in parallel with 30 pF
Maximum input voltage	300 V (DC + AC peak) at 1 kHz or 600 V(p-p) AC

X-Y OPERATION (CH1; Horiz, CH2 ; Vert)

Note: X-Y operation is possible in oscilloscope mode only. In storage mode, this operation is possible after storaging.

Deflection factor	Same as vertical deflection
X-bandwidth	DC to at least 500 kHz $^{+1\ dB}_{-3\ dB}$
Phase error	3 ° or less from DC to 50 kHz

CALIBRATOR

An approximate 1 kHz frequence 0.5 V ($\pm$3 %) square wave

SIGNAL OUTPUT

CH1 VERT SIGNAL OUTPUT

Output voltage is at least 20 mV/div into a 50 ohm load.

Bandwidth is DC to at least 5 MHz.

DIGITAL STORAGE

WAVEFORM STORAGE

Memory capacity	4000 W/CH x 2
Vertical base resolution	8 bits/10 div
Horizontal base resolution	400 steps/div
Maximum sampling rate	Single channel sampling: 40 MHz Dual channel sampling: 20 MHz Sampling rate depends on the time range. (400 samples/div)
Maximum storage frequency (Maximum amplitude accuracy; 30 % or less)	• 40 MHz at single channel and for repetitive signal • 20 MHz at dual channel and for repetitive signal • 10 MHz at single channel for one shot signal • 5 MHz at dual channel for one shot signal

DATA ACQUISITION

NORM storage mode	Shifts the data by each triggering.
AVG mode	Averages input signals by the selected number of sweeps and displays the consequence after the averaging reaches the selected number. (The number of times: exponent of 2, maximum 256 times)
HOLD mode	Holds the waveform displayed on the CRT by the HOLD switch.
SINGLE sweep	Renews the display by the first trigger and no more trigger is actuated.
ROLL mode	Shifts the data right to left consequently on the CRT. (Renewed point is the right end.)

DATA SAVE

Up to two waveforms can be displayed on CRT saved by the SAVE switch. Up to two storaged waveforms can be displayed on the CRT.
In the AVG mode, however, the saved waveforms are stored as AVG data.

PRE-TRIGGER

Changeable 0 to 9.9 div
(Changeable every 0.1 div)
Trigger position is displayed on the CRT waveform as a dot in the DATA indicator.

DATA OUTPUT

PLOT output

Y axis output 1 V/div ±100 mV
(Two channels simultaneously)
Output time: Four steps switching
(1, 2, 5 and 10 s/div)
Load resistance: 2 k ohms or more
Pen lift: TTL negative
Fan out 1

DIGITAL OUTPUT

(Option)

Provides data by GPIB interface.
Data: (Measurement conditions and waveform)
Measurement conditions:
Vertical mode, Input coupling
TIME/DIV, VOLTS/DIV,
Pre-trigger, Ground reference
Waveform: Decimal progression
(By block transfer system)

CURSOR DISPLAY

Displays the time or voltage difference between specified cursors.

X-Y DISPLAY

Provides X-Y display of stored waveform

MAGNIFYING DISPLAY

Magnifies and displays one division of the waveform after storage by ten times starting from the cursor point.

POWER SUPPLY

VOLTAGE	FUSE
100 V (90 to 110 V)	5 A
120 V (108 to 132 V)	5 A
220 V (198 to 242 V)	3 A
240 V (216 to 264 V)	3 A

Frequency	50 to 60 Hz
Power consumption	Approx. 120 W

ENVIRONMENT

Operation temperature	0 to 40 °C (30 to +104 °F)
Operation humidity	35 to 85 %
Temperature for guaranteed specifications	+10 to +35 °C (+50 to +95 °F)
Humidity for guaranteed specifications	45 to 85 %
Storage and transport temperature	−20 to +70 °C (−4 to +158 °F)
Storage and transport humidity	35 to 85 % (70 % of less in the temperature of 50 °C/114 °F)

DIMENSIONS AND WEIGHT

Dimensions	Approx. 330(W) x 190(H) x 470(D) mm [12.9(W) x 7.5(H) x 18.5(D) inch]
Weight	Approx. 15 kg (33 lbs)

2. COMPOSITION

(1)	VC-6041	1 set
(2)	Accessories	
	Spare Fuse	1 pc.
	AT-10AK 1.5 probes	2 pcs.
	Operation manual	1 copy
	Dustproof cover	1 pc.

3. PREVENTIVE MAINTENANCE

Preventive maintenance, when performed on a regular basis, can prevent instrument breakdown and may improve the reliability of the oscilloscope. The severity of environment to which this instrument is subjected will determine the frequency of maintenance. A convenient time to perform preventive maintenance is just prior to the recalibration of the instrument.

Disassembly

Remove all of the screws on the top cover of the instrument, then gently remove the top cover.

Take the same procedure for the bottom cover.

Most of the internal parts of the instrument are now accessible.

(See section 10. Exploded view)

Cleaning

The instrument should be cleaned as often as the operating conditions require, since the accumulation of dirt in the instrument may cause the component breakdown.

The covers can provide protection against dust in the interior of the instrument. Loose dust accumulated on these covers can be removed with a soft cloth or small brush.

Dirt that remains can be removed with a soft cloth applying in a mild detergent and water solution. Abrasive cleaners should not be used.

Cleaning the interior should be only occasionally necessary. The best way to clean the interior is to blow off the dust with a dry, low-velocity stream of air. A soft-bristle brush or a cotton-tipped applicator is useful for cleaning narrow spaces or for cleaning more delicate components.

Visual inspection

The instrument should be inspected occasionally for such defects as broken connections, improperly seated transistors, damaged circuit boards, and heat-damaged parts. The corrective procedure for most visible defects is apparent; however, particular care must be taken if heat-damaged components are found. Overheating usually indicates other trouble in the instrument; therefore, correcting the cause of the overheating is important to prevent the recurrance of the damage.

4. CALIBRATION

Hitachi Denshi, Ltd. provides complete instrument repair and recalibration at our office, and authorized dealer. Contact your local Hitachi Denshi sales office or representative.

4.1 Calibration interval

To maintain instrument accuracy, perform the calibration of the VC-6041, at least every 1000 hours of operations or every six month if used infrequently.

4.2 Test equipment required

The following test equipment and accessories, or its equivalent, are required for the complete calibration of the VC-6041. Specifications given for the test equipment are the minimum necessary for accurate calibration. Therefore, the specifications of any test equipment used must meet or exceed the listed specifications. All the test equipment is assumed to be correctly calibrated and operated within the listed specification. Operating instructions for the test equipment are not given in this procedure. Refer to the instruction manual for the test equipment if more information is needed.

4.3 Preliminary procedure

This instrument should be calibrated at an ambient temperature of +20 °C ($\pm$5 °C) for best overall accuracy.

1. Connect the instrument to AC line voltage, 50/60 Hz line source.
2. Set the instrument controls as given in the preliminary control settings. Allow at least fifteen minutes of warmup before proceeding.
3. See the adjustment locations in the pullout pages.

Table 4-2

TEST EQUIPMENT REQUIRED

Description	Minimum specification	Usage	Example of applicable test equipment
1. Constant amplitude signal generator	50kHz reference frequency; maximum frequency 70MHz; variable amplitude	Check horizontal, vertical and trigger bandwidth.	
2. Standard amplitude calibrator	Amplitude accuracy: 0.25%, variable amplitude; 5mV to 40V; frequency: 1 kHz square wave	Check horizontal and vertical gain.	
3. Square-wave generator	Variable frequency: 10Hz to 1MHz; output amplitude; 10mV to 100V	Check probe and vertical compensation.	
4. Digital voltmeter	0.1% accuracy	Check power supply.	
5. Time mark generator	0.1% accuracy	Check horizontal timing.	
6. Cable	Impedance, 50 ohms; type, RG-58/U; length, 42 inches, connectors, BNC	External trigger operation check. Horizontal gain check and adjustment.	Hitachi part No.4202
7. Termination	Impedance, 50 ohms; connectors, BNC	Vertical amplifier compensation checks and adjustment.	
8. Attenuator	Ratio, 1/10; connectors, BNC; impedance, 50 ohms	Vertical amplifier bandwidth check.	
9. T-connector	Connectors, BNC	External trigger operation checks.	Hitachi part No.1301

4.4 Preliminary control settings

Set the instrument controls as follows, when starting the calibration procedures.

Controls	Settings	Controls	Settings
FOCUS	Midrange		
TRACE ROTATION	As desired		
- VERT -			
V. POSITION	Midrange, pushed in	SWP VAR	Fully clockwise
V. VARIABLE	CAL, fully clockwise	CH1 ALT MAG	Normal (Button Out)
INPUT COUPLING	GND (AC-GND-DC)	- TRIG -	
VOLTS/DIV	5 mV/DIV		
V.MODE	CH1	LEVEL	Midrange, Normal
CH2 INV	Normal, Pushed in	SLOPE	+ Normal
- HORZ -			
H. POSITION	Midrange	MODE	AUTO
PULL ×10 MAG	Normal, Pushed in	SOURCE	INT
TIME/DIV	1 ms	INT TRIG	CH1

4.5 Initial starting procedure

1. Rotate the INTENsity control to the midrange, set the NON STORE switch to ON and set the POWER switch to ON.
2. Wait a few seconds for the cathode ray tube (CRT) to warm up. A trace should appear on the CRT.
3. If trace disappears, increase (clockwise) the INTENsity control setting until the trace is easily observed, or roughly check/adjust the DC balance to get a trace as same as (13).
4. Adjust the FOCUS control for the best focused display.
5. Readjust the POSITION controls if necessary, to center the trace.

POWER SUPPLY SYSTEM

NOTE

Before you start operation, see the adjustment locations in the pullout pages.

Control settings

Preset the controls as given in the preliminary control setting

(1) Check low-voltage supply, if necessary.

a. Connect the digital voltmeter (DVM) between the +8 V line (P1105-2) and ground

: +7.7 to +8.3 V

b. Connect the DVM between the -8 V line (P1105-4) and ground

: -8.3 to -7.7 V

c. Connect the DVM between the +5 V line (P1105-3) and ground

: +4.8 to +5.2 V

d. Connect the DVM from the +75 V line (P1105-1) and ground

: +67.5 to +82.5 V

(2) Check high voltage supply.

a. Connect the DVM to the H.V. test point (P1001-1) with a high voltage probe.

b. Check for a reading of -1.732 to 1.568 kV

DISPLAY

Control setting

Preset the controls as given in the preliminary control setting.

(3) Check/adjust CRT bias.

Set the Trig MODE switch to the AUTO, and set the TIME/DIV switch to the 1 ms.

a. Connect the digital voltmeter (DVM) to the R904 (or D1022-Ⓐ) and ground.

b. Adjust the INTENSITY control so that the DVM indicates 15.0 V.

c. Observe the trace of CRT.

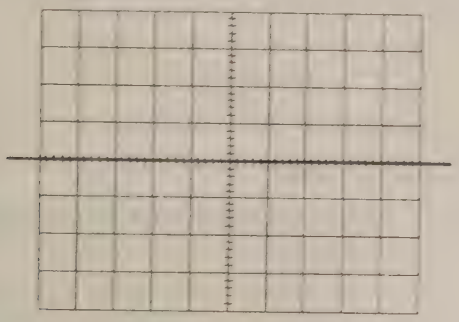
d. Adjust the grid bias adjustment RV1021 for the trace makes a just appear.

④ Check/adjust trace rotation.

a. Position the trace to the center graticule line.

b. Check that the trace is in parallel with the center horizontal line.

c. Adjust TRACE ROTATION (screwdriver adjustment on front panel) for a trace that is in parallel with the horizontal graticule lines.



⑤ Check/adjust GEOMetry

a. Set the TIME/DIV to the 0.1 ms, and the input coupling switch to DC.

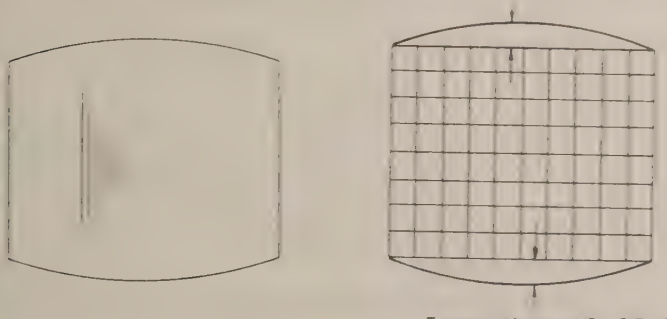
b. Connect the constant amplitude signal generator to the input.

c. Set the VOLTS/DIV switch setting for a full-screen (8 division) deflection.

d. Check that horizontal bowing is less than ±0.15 division.

e. Adjust the GEOM adjustment RV1033 for a display so that horizontal bowing is less than ±0.15 division.

Less than ±0.35 div

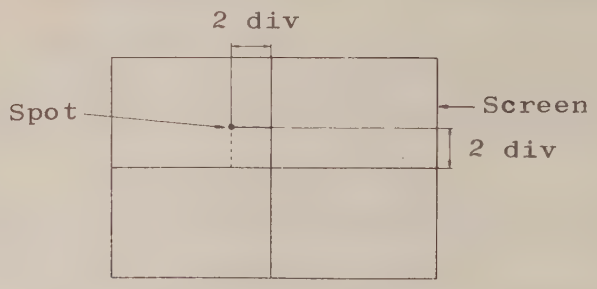


Less than ±0.35 div

⑥ Check/adjust ASTIGmatism and FOCUS.

a. Set the TIME/DIV switch to the X-Y position, and the input coupling switch to GND.

b. Set the INTENsity control for a small spot, as the following figure, using the position controls.



c. Check that the spot is round.

d. Adjust the FOCUS adjustment and ASTIG adjustment RV1035 for a round spot.

HORIZONTAL SYSTEM

Control settings

Preset the controls as given in the preliminary control settings.

Connect the oscilloscope to P1880-2. After setting the starting voltage to 0 V by RV473, proceed the following settings.

⑦ Check/adjust horizontal gain.

a. Set the input AC-GND-DC to DC.

b. Connect the cable to the output of the time mark generator.

c. Set the time mark generator for 1 ms time marks.

d. Check that the time marks align with the graticule lines over the center eight divisions, within 3 %.

e. Adjust the H GAIN adjustment RV824 so that the time marks coincide with the middle eight graticule lines.

⑧ Check/adjust Horizontal ×10 MAG Gain.

a. Set the TIME/DIV switch to 1 ms.

b. Set ×10 MAG (pull out the knob of the POSITION control).

c. Check that the one-cycle time marks align with the ten-divisions graticule lines, within 5 %.

d. Adjust the MAG GAIN adjustment RV831 so that one-cycle time marks coincide with the ten-division graticule lines.

e. Push in the POSITION control after adjustment and check.

⑨ Check/adjust MAG CENT.

a. Set the TIME/DIV switch to 1 ms.

b. So that the knob of H.POSITION is pulled out (×10 MAG), the left end of the trace is brought to the center point and then the knob of H.POSITION is depressed.

c. Observe the movement of the left end of the trace.

d. Adjust the MAG CENT adjustment RV821 for the movement of the left end of the trace within ±0.2 div.

⑩ Check/adjust low speed sweep accuracy.

a. Set the time mark generator for 10 ms time marks.

b. Set the TIME/DIV switch to 10 ms.

c. Check that the time marks align with the graticule lines over the middle eight divisions, within 3 %.

d. Adjust the 10 ms/DIV adjustment RV542 so that the time marks coincide with the middle eight graticule lines.

⑪ Check/adjust high speed sweep accuracy.

a. Set the input coupling switch to DC.

b. Set the time mark generator for 2 μs time marks.

c. Set the TIME/DIV switch to 2 μs.

d. Check that the time marks align with the graticule lines over the middle eight divisions.

e. Adjust CV520 so that the time marks coincide with middle eight graticule lines.

⑫ Check/adjust high speed ×10 MAG GAIN

a. Set the TIME/DIV switch to the 2 μs.

b. Set ×10 MAG (pull out the knob of the POSITION control).

c. Check that the one-cycle time marks align with the ten-divisions graticule lines, within 5 %.

d. Adjust the high speed Mag gain adjustment CV840 so that one-cycle time marks align with the ten-division graticule lines.

e. Push in the POSITION control after adjustment and check.

⑬ Check/adjust DC balance (Step attenuator balance).

a. Set the VOLTS/DIV switch to the 5 mV position.

b. Position the trace to the horizontal center line.

c. Change the VOLTS/DIV switch to the 10 mV position.

d. Check that the trace is within ±0.05 division of the center horizontal line.

e. Adjust the CH1 (CH2) DC BAL adjustment, RV22 (CH1) or RV122 (CH2), for a trace at the horizontal center line.

f. Repeat the part (a) through (e) until less than ±0.05 division shift is noted when changing the VOLTS/DIV setting.

⑭ Check/adjust vertical position center.

(CH1)

a. Pull out the vertical POSITION control (set the DC OFFSET mode).

b. Connect a DVM to the DC OFFSET VOLT OUTput terminal.

c. Adjust the vertical POSITION control so that the DVM indicates 0 V.

d. Adjust the position center adjustment RV63 (CH1 only), for a trace at the horizontal center line.

(CH2)

e. Confirm the vertical POSITION control at the midrange.

f. Check the trace is within 1 division.

g. Adjust the position center adjustment RV163 (CH2) for a trace at the horizontal center line.

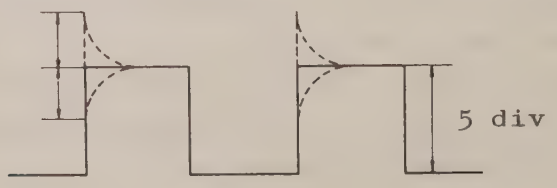
⑮ Check/adjust ×1 AC GAIN.

a. Set the TIME/DIV switch to the 1 ms position.

b. Set the VOLTS/DIV switch to the 10 mV position.

c. Set the input coupling switch to DC.

d. Connect the square-wave generator (using 1 kHz output range).



e. Adjust the output amplitude of that generator for 5 division deflection of screen.

f. Check the high-voltage level of pulse is flat.

g. Adjust the ×1 AC GAIN RV33 (CH1), RV133 (CH2) adjustment for a flat level.

⑯ Check/adjust vertical gain.

a. Set the VOLTS/DIV switch to the 10 mV position and the input coupling switch to DC.

b. Connect the standard amplitude calibrator to the input connector.

c. Set the standard amplitude calibrator for a 50 mVp-p (5 divisions for display) signal.

d. Check for a display of five divisions.

e. Adjust the GAIN adjustment RV62 (CH1), RV162 (CH2) for a display of 5 divisions within 2 %.

f. Check all the VOLTS/DIV switch settings.

⑰ Check/adjust input capacity (ATT: ÷1).

a. Set the VOLTS/DIV switch to the 10 mV position.

b. Set the input coupling switches to DC.

c. Connect the L-C meter to the input terminals.

d. Check the input capacity for approx. 23 pF.

⑱ Check/adjust vertical step response.

a. Set the VOLTS/DIV switch to the 5 mV position.

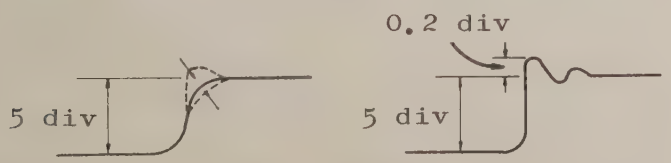
b. Set the TIME/DIV switch to the 0.5 μs position.

c. Connect the fast-rise, positive output (50 mV, 1 MHz) of the square-wave generator to the input. Use a 50 Ω termination and cable.

d. Adjust the square-wave generator output for a 5-divisions display.

e. CH1 - Adjust CV336 and CV355 so that a square wave is flat. Then, adjust CV337 for overshoot of +0.2 div.

CH2 - Adjust CV161 for overshoot of +0.2 div.



⑲ Check/adjust attenuation compensation.
(ATT : ÷10, ÷100)

a. Set the input coupling switch to DC.

b. Connect the square-wave generator to the CH1 (CH2) input terminal check for a square wave that is flat (flat top) under the following settings.

ATT	VOLTS/DIV	Square-wave generator output
÷10	0.1 V	0.5 V
÷100	1 V	5 V

c. Adjust the trimmer capacitors for a square wave that is flat (flat top) under the following settings.

ATT	VOLTS/DIV	Square-wave generator output	Adjust CH1 (CH2)
÷10	0.1 V	0.5 V	CV4 (CV104)
÷100	1 V	5 V	CV7 (CV107)

⑳ Check/adjust input capacity (ATT: ÷10, ÷100).

a. Connect the L-C meter to the input connector.

b. Check the input capacity for approximately 23 pF.

c. Adjust the trimmer capacitors for a 2 pF input capacity under the following settings.

ATT	VOLTS/DIV	Adjust CH1 (CH2)
÷1	5 mV	—
÷10	0.1 V	CV3 (CV103)
÷100	1 V	CV6 (CV106)

(21) X-Y operation

21-1 Check/adjust X gain.

a. Set the TIME/DIV switch to X-Y, the input coupling switch of CH1 to AC, the input coupling switch of CH2 to GND.

b. Set the VOLTS/DIV switch to the 10 mV position.

c. Connect the standard amplitude calibrator to the CH1 input connector.

d. Set the standard amplitude calibrator for 50 mV.

e. Check for a display of five divisions.

f. Adjust the X GAIN adjustment RV550 for a display of five divisions within 6 %.

21-2 Check/adjust X position center.

a. Set the TIME/DIV switch to the X-Y position, and the horizontal POSITION control to the midposition, the input coupling switch of CH1 to GND.

b. Check to see that the round spot is near the center graticule and is within $\pm$0.2 division against horizontal line.

c. Adjust the X CENT adjustment RV85 to the position spot at the center.

TRIGGER SYSTEM

(22) Check/adjust TRIG CENT.

a. Set the TRIG SOURCE switch to INT, the INT TRIG switch to CH1, the TRIG SLOPE knob push in, the VOLTS/DIV switch to 50 mV, the TIME/DIV switch to 10 μs.

b. Connect the sine-wave generator to the input connector for a 0.5 div (50 kHz).

c. Set the TRIG LEVEL knob to the midposition.

d. Adjust RV420 so that synchronization is effected on the waveform, 0.5 div on the screen.

e. Next, set the TRIG SLOPE to - (pulled out state) and insure that the waveform is triggered. After confirmation, leave the TRIG SLOPE in depressed state. Readjust when stepped out.

f. Set the TRIG COUPLING to DC and repeat the step e. Adjust RV85(PEF620) if necessary.

㉓ Check/adjust CH2 TRIG BAL.

a. Set the VOLTS/DIV switch to 50 mV (CH1 and CH2), the TIME/DIV switch to 10 μs, the TRIG SOURCE switch to INT, the INT TRIG switch to $\frac{\text{VERT}}{\text{MODE}}$, the V.MODE switch to ALT, and the CH1 POSITION knob to the midposition.

b. Connect the sine-wave generator to the input connectors (CH1 and CH2) for a 5 div (50 kHz).

c. Adjust CH2 POSITION control so that CH2 waveform comes to CH1.

d. Next, adjust RV185 so that both waveforms (CH1 and CH2) coincides.

CALIBRATOR

㉔ Check/adjust CAL terminal (0.5 Vp-p, 1 kHz).

a. Connect the CAL terminal to the digital multimeter, short the terminal 1 to 3 of the connector (P1206).

b. Check for the CAL output of 0.5 V, within 1 %.

c. Adjust the 0.5 V adjustment RV1201 for the CAL output of 0.495 to 0.505 V.

DIGITAL STORAGE SECTION

㉕ Checking of the supply voltage (circuit board PEF-654)

a. Connect the DVM between P1142-1 and ground and check if the voltage is in the following range.

: +4.8 to 5.2 V (For digital section)

Adjust VOLTS ADJ of the switching regulator if necessary.

b. Connect the DVM between P1142-5 and ground, and check if the voltage is in the following range.

: +4.8 to +5.2 V (For analog section)

c. Connect the DVM between P1142-6 and ground, and check if the voltage is in the following range.

: -5.2 to -4.8 V (For analog section)

d. Connect the DVM between P1142-7 and ground, and check if the voltage is in the following range.

: +11.5 to +12.5 V (For analog section)

e. Connect the DVM between P1142-8 and ground, and check if the voltage is in the following range.

: -12.5 to -11.5 V (For analog section)

f. Connect the DVM between pin #2 of IC1162 and ground, and check if the voltage is in the following range.

: -13.0 to -11.0 V (For fan)

(26) Checking of the DA output circuit (circuit board PEF-648)

a. Replace the ROM mounted on PEF-646-5F (indicates IC address) with the ROM for TEST after turning off the power.

b. Setting of controls

STORAGE MODE	: NON STORE
VERTICAL MODE	: CH1
CH1 VOLTS/DIV	: 5 mV

CH1 POSITION; Pushed in, set the trace at the center line on the screen (Error : $\pm$0.05 div)

INPUT	: GND
TIME/DIV	: 10 μs
PULL STORAGE POSITION	: Depress
HORIZONTAL POSITION	: Set the trace starting point to 0 div (Error within $\pm$0.05 div).

c. Checking of the starting point and length of the trace

(c.1) Check that the trace starting point shifts within $\pm$0.3 div when NON STORE and NORM are switched over alternately.
Adjust RV5003 if the starting point shifts over $\pm$0.3 div.

(c.2) Check that the trace length is $10^{+0.1}_{-0}$ div.
Adjust RV5004 if the length is over $10^{+0.1}_{-0}$ div.

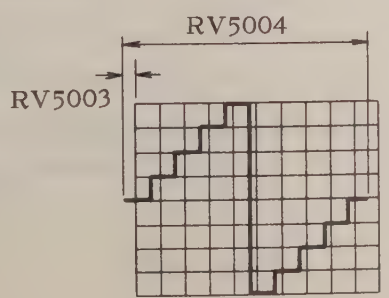


Fig. 26-1

d. Checking of the Y off-set and gain

(d.1) Check that the center line of the waveform amplitude meets with the center horizontal line.

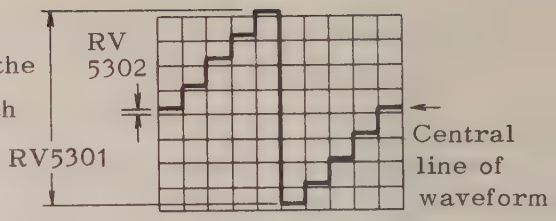


Fig. 26-2

Adjust RV5302 so that the difference of two lines is within ±0.05 div, if necessary.

(d.2) Check that the waveform amplitude occupies 8 div.
Adjust RV5301, if necessary so that the deviation becomes within ±1 %.

e. Checking of the recorder output

(e.1) Set STORAGE MODE to HOLD and push the PLOT switch. (PLOT lamp lights up.)

(e.2) Connect the DVM between the BNC connector of CH1(CH2) on the rear panel and ground.
Adjust RV7801 (RV7802) if the terminal voltage is not 9.996 V ±20 mV.

(e.3) The output voltage is supplied while the PLOT lamp lights.
When the PLOT switch is pressed again while the PLOT lamp lights, the PLOT lamp lights off and the output comes down to 0 V.

f. After completing the above checks and adjustments, replace the TEST ROM mounted on 5 F of PEF-646 with the ROM mounted.

(27) Checking the AD converter section (circuit board PEF-643)

a. Checking of the AD reference voltage
Connect the DVM between test point TP5110 of PEF-643 and ground.
Adjust RV5100 if the reading is not within -2 V ±3 mV.

b. Checking of the sampling pulse width

(b.1) Setting of controls

TIME/DIV : 5 μs/div
VOLTS/DIV : 10 mV/div

STORAGE MODE : NORM

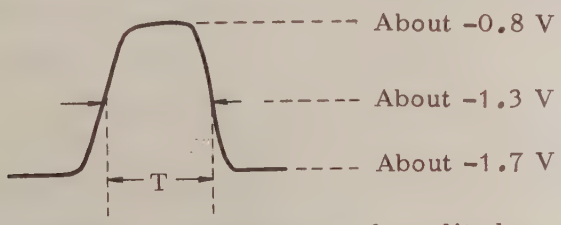
VERTICAL MODE : CH1

INPUT : DC or AC

Input signal : 50 kHz, sine

(b.2) Connect the oscilloscope between TP5106 and ground and check the pulse width T shown in Fig. 27-1.

Adjust RV5106 so that the pulse width is within 10 ns ±0.5 ns.



Measure at the center of amplitude

Fig. 27-1

c. Checking of the AD clock width

(c.1) Setting of controls

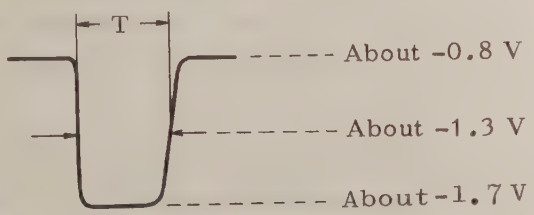
TIME/DIV : 0.1 ms/div

Set the others as the same as the step (b.1).

(c.2) Connect the oscilloscope between TP5112 (TP5113) and ground, and check the pulse width T shown in Fig. 27-2.

Adjust RV5109 (RV5110) so that the pulse width is 23 ns to 24 ns.

* ( ) indicates the case of CH2.



Measure at the center of amplitude

Fig. 27-2

d. Checking of the AD converter input

(d.1) Setting of controls

STORAGE MODE	:	NON STORE
VERTICAL MODE	:	CH1 or CH2
TIME/DIV	:	0.1 ms/DIV
VOLTS/DIV	:	10 mV/DIV
INPUT	:	GND
V. POSITION	:	Depress Set the trace to the center line on the screen. (Both CH1 and CH2)

STORAGE V. POSITION: Depress

(d.2) Checking of the CH1 offset

(d.2.1) Set the STORAGE MODE to NORM and the VERTICAL MODE to CH1.

(d.2.2) When shorting between TP9002 and TP9003, check that the trace is displayed at the center horizontal line on the screen. Adjust RV5102 if necessary so that the electric potential between TP5108 and ground (TP5118) is within - 1.000 V $\pm$3 mV.

(d.2.3) Check that the waveform oscillation obtained from TP5108 is less than 10 mV on the oscilloscope.
Adjust RV5104 if the oscillation is over 10 mV. (Adjust RV5102 and RV5104 alternately and decide the proper value because the offset is slipped off again by this adjustment.)

(d.2.4) Check that the electric potential between TP5109 and ground is within -1.000 V $\pm$3 mV in the same manner as step (d.2.3). Adjust RV5103 if the potential is over -1.000 V $\pm$3 mV.

(d.2.5) Check the waveform oscillation obtained from TP5109 is within 10 mV.
Adjust RV5105 if the oscillation is over 10 mV.
(Adjust RV5103 and RV5105 alternately because the offset is slipped off again by this adjustment.)

(d.3) Check/adjust CH1 gain

(d.3.1) Setting of controls

STORAGE MODE : NON STORE

INPUT : DC
VERTICAL MODE : CH1
TIME/DIV : : 0.1 ms/DIV
VOLTS/DIV : 10 mV/DIV

(d.3.2) When CAL square wave is supplied, the amplitude on the screen is set to 5 div and STORAGE MODE is switched to NORM from NON STORE, check that the amplitude on the screen is 5 div. Adjust RV9001 to make the amplitude 5 div if necessary.

(d.4) Checking of the CH2 offset

(d.4.1) Setting of controls

VERTICAL MODE : CH2
TIME/DIV : 10 μs/DIV
STORAGE MODE : NORM
VOLTS/DIV : 10 mV/DIV

(d.4.2) When the input is grounded and the trace is shifted for ±1 div from the center line on the screen, check that the trace width is within 0.2 div.
If the width is over 0.2 div, settle V POSITION control where the trace has a maximum width and adjust RV5103 to make the trace width narrowest.

(d.5) Checking of the CH2 gain

(d.5.1) Setting of controls

STORAGE MODE : NON STORE
INPUT : DC
VERTICAL MODE : CH2
TIME/DIV : 0.1 ms/DIV
VOLTS/DIV : 10 mV/DIV

(d.5.2) When CAL square wave is supplied, the amplitude on the screen is set to 5 div and STORAGE MODE is switched to NORM from NON STORE, check that the amplitude on the screen is 5 div. Adjust RV9008 to make the amplitude 5 div if necessary.
(Recheck the offset of the step (d.4).
If necessary, repeat (d.4) and (d.5) alternately and decide the adequate value.)

e. Check/adjust gain when 50 μs/DIV

(e.1) Setting of controls

VERTICAL MODE	: CH1
TIME/DIV	: 50 μs/DIV
VOLTS/DIV	: 10 mV/DIV
STORAGE MODE	: NON STORE
INPUT	: DC
Input signal	: CAL square wave, 5 div

(e.2) Switch STORAGE MODE to NORM from NON STORE and set PRE TRIGGER 5 div. Check that the amplitude is 5 div ±0.02 div on the screen.

Adjust RV5106 if necessary so that CH1 gain corresponds to CH2 gain under the amplitude of 5 div ±0.02 div.

f. Checking of the CHOP MODE

(f.1) Setting of controls

STORAGE MODE	: NON STORE
VERTICAL MODE	: CHOP
INPUT	: GND
TIME/DIV	: 0.1 ms/DIV
VOLTS/DIV	: 10 mV/DIV
CH V.POSITION	: Midposition

(f.2) Checking of the CH1 offset

When STORAGE MODE is switched to NORM from NON STORE, check that the trace is not slippled off from the horizontal center line of the screen. If necessary, adjust RV9006 so that the trace is on the center line.

(f.3) Check/adjust CH1 gain

When the INPUT is set to DC and CAL square wave is applied for 5 div, check that the screen display occupies 5 div.

If necessary, adjust RV9000 so that the screen display is within 5 ±0.05 div.

㉘ Check/adjust equivalent sampling mode (circuit board PEF-648)

a. Setting of controls

STORAGE MODE	: NORM

VERTICAL MODE : CH1
TIME/DIV : 2 μs/div
VOLTS/DIV : Adequate
INPUT : GND
V.POSITION : Adequate

b. Set TRIG MODE to AUTO and turn TRIG LEVEL fully clockwise or fully counterclockwise.

Connect the oscilloscope between pin 6A-6 (operational amplifier output) and ground, and check that the starting voltage is 0.2 V. If necessary adjust RV5005.

Fig. 28-1

c. Supply time marker of 2 μs and check that the error is 0 %.
If necessary, set to 0 % by RV5001.

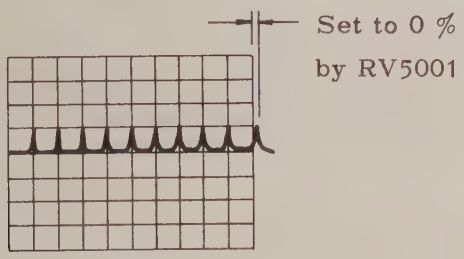


Fig. 28-2

(29) Checking of the square wave characteristics

a. Setting of controls

TIME/DIV : 0.2 μs/DIV
VOLTS/DIV : 10 mV/DIV
STORAGE MODE : NORM
Input signal : 1 MHz, CAL square wave (fast rise), 5 div

b. Check that the overshoots of square wave at CH1 and CH2 are within 8 %. If necessary adjust CV9002 (for CH1) and CV9031 (for CH2) of PEF-643.

(30) Checking of the STORAGE X-Y

a. Setting of controls

TIME/DIV	: 0.1 ms/DIV
VOLTS/DIV	: Adequate
VERTICAL MODE	: CHOP
STORAGE MODE	: NORM
INPUT	: CH1- DC, CH2 - GND
Input signal	: 1 kHz, CAL is supplied to 5 div, CH1

b. Checking of the X-Y gain

When STORAGE MODE is set to HOLD and TIME/DIV is set to X-Y, check that the horizontal amplitude is 5 div. If necessary set the amplitude to 5 div by RV5002 of the PEF-693.

c. Checking of the X-center

Set STORAGE MODE to NORM and set INPUT of CH1 and CH2 to GND. Adjust V. POSITION so that the trace falls on the center of the screen at both channels.

Set STORAGE MODE to HOLD and set TIME/DIV to X-Y. Check that the bright spot is displayed at the center on the screen when turning the H. POSITION to midrange.

If necessary, adjust RV5300 of the PEF-648 so that the bright spot is on the center of the screen.

5. CIRCUIT DESCRIPTION

- Introduction -

This section contains a description of the circuitry used in VC-6041. The block diagram (p.51 to 54) shows the overall relationship between all of the circuits. Complete schematics of each circuit are also given in section Schematic diagrams (p.85 to 154). Refer to these diagrams throughout the following circuit description for electrical values and relationships.

CHANNELS 1 and 2 VERTICAL PREAMP

Input signals for vertical deflection on the CRT can be connected to the "CH1 OR X" and (or "CH2 OR Y" input connectors. In the X-Y mode of operation, CH1 input signal provides the horizontal (X-axis) deflection and CH2 input signal provides the vertical (Y-axis) deflection.
The Channel 1 and 2 Vertical Preamp circuits provide control of input coupling, vertical deflection factor, DC balance, vertical position and vertical gain. They also contain a stage to provide a sample of the input signal to the Trigger Preamp circuit for internal triggering from the Channel 1 and (or) Channel 2 signal only.

VERTICAL SWITCHING CIRCUIT

The vertical switching circuit changes the vertical signal path in the NON STORE mode or STORAGE mode.
In the case of NON STORE mode, whether the CH1 or CH2 or both Vertical Preamp output signals are connected to the Vertical Output Amplifier circuit (through the Delay Line Driver and Delay Line stages).
In the ALT and CHOP mode, both channels are alternately displayed on a shared time basis.
In the case of STORAGE mode, the path from the Vertical Preamp circuit to the Vertical Output Amplifier is cut off. Then whether the CH1 or CH2 or ADD signals of them are connected to the Interface of the first stage of the A/D Converting Circuit. When the MODE select switch is set to ALT, both channels are alternately fed from the Vertical Amplifier on a shared time basis. When the MODE select switch is set to CHOP, CH1 and CH2 pass through the routes independently in parallel, where CH1 is fed from CH1

Preamp and CH2 is fed from the Vertical Amplifier.
The circuit also supplies the signal composed in the Display Memory section by D/A converting the storaged waveform data as an input signal to the Vertical Output Amplifier in the case of STORAGE mode.

VERTICAL OUTPUT AMPLIFIER

The Vertical Output Amplifier circuit provides the final amplification for the signal before it is applied to the vertical deflection plates of the CRT.

TRIGGER PREAMP

The Trigger Preamp circuit amplifies the internal trigger signal to the level necessary to drive the Trigger Generator circuit.
Input signal for the Trigger Preamp circuit is obtained by sampling the signal applied to Channel 1 or the composite vertical signal from the Vertical switching circuit.
This circuit also provides a signal to the Horizontal Amplifier for X-Y mode operation.

TRIGGER GENERATOR

The Trigger Generator circuit produces trigger pulses to start the Sweep Generator circuit. The trigger pulses are derived either from the internal trigger signal from the vertical deflection system, an external signal connected to the EXT TRIG INput connector or a sample of the line voltage applied to the instrument.
Controls are provided in this circuit to select trigger level, slope, source and coupling.
The Trigger MODE switch determines the operating mode for the trigger circuit. In the NORM Trig position, a sweep is produced only when a trigger pulse is received from the Trigger Generator circuit. Operation in the AUTO Trig mode is the same mode as NORM Trig mode, except that a free-running trace is displayed when a trigger pulse is not present or when the amplitude of the trigger signal is not adequate.

SWEEP GENERATOR

The Sweep Generator circuit produces a sawtooth voltage which is amplified

by the Horizontal Amplifier circuit to provide horizontal deflection on the CRT. This sawtooth voltage is generated on command (trigger pulse) from the Trigger Generator circuit.

The Sweep Generator circuit also produces an unblanking gate to unblank the CRT during sweep time.

HORIZONTAL SWITCHING CIRCUIT

The horizontal switching circuit selects the signal to be applied to the horizontal deflection plates of the CRT.

In the case of NON STORE mode, the sawtooth waveform signal generated by the Sweep Generator circuit is selected as the horizontal deflection signal if the TIME/DIV switch is not set to X-Y. If the switch is set to X-Y, X signal which is obtained from the CH1 Vertical Preamp through the Trigger Preamp circuit is selected.

In the case of STORAGE mode, the signal composed by the Display Memory circuit is selected. When the TIME/DIV switch is not set to X-Y, the digital sweep signal which is composed by synchronizing with the read-out timing of the Display Memory is selected.

When the switch is set to X-Y, the circuit selects the stored X signal which is obtained by D/A converting the output data of the CH1 Display Memory.

HORIZONTAL AMPLIFIER

The Horizontal Amplifier circuit provides the output signal to the CRT horizontal deflection plates.

CALIBRATOR

The Calibrator circuit produces a square-wave output with accurate amplitude and frequency. This output is available as a square-wave voltage at the CAL 0.5 V (1 kHz) connector.

Z AXIS AMPLIFIER

The Z-Axis Amplifier circuit controls the CRT intensity level from several inputs. The effect of these input signals is to either increase or decrease the trace intensity, or to completely blank portions of the display.

CRT CIRCUIT

The CRT Circuit provides the high-voltage and control circuits necessary for operation of the cathode-ray tube (CRT).

POWER SUPPLY

The low-voltage Power Supply circuit is composed of Power supply 1 which supplies power to oscilloscope section, Power supply 2 which supplies power to digital circuits and Switching regulator unit (for digital circuits) of +5 V. Power supply 1 supplies four regulated supplies and one unregulated supply while Power supply 2 supplies four regulated supply.

The Power Input stage is provided with a Voltage Selector Assembly. This selector allows selection of the nominal operating voltage and regulating range for the instrument.

A/D CONVERTING CIRCUIT

The A/D converting circuit is composed of Vertical Interface, Sample Holder and A/D converter. The vertical interface amplifies the vertical signal obtained from the vertical switching circuit and supplies the signal to sample holders for CH1 and CH2.

The sample holders sample the vertical signal at a sampling interval in accordance with the TIME/DIV switch, and hold the voltage level. This voltage is converted to digital data by A/D converter of the second stage.

The A/D converting circuit has TTL/ECL (ECL/TTL) converting circuits between the circuit and peripheral circuits because the level of the sample holder driving clock, and output of A/D converter are ECL.

ACQUISITION MEMORY

The waveform data which is A/D converted is temporary memorized in the Acquisition Memory circuit. The circuit is provided with a capacitance of 4 kW (8 bit) per channel and repeats writing the sampled data in order until the data of one waveform (4 kW) is accumulated. The memory control is executed by ACQ Memory Controller. After completing the data acquisition up to one waveform, the memory operation is prohibited and the data is read out and transferred.

TIME BASE CIRCUIT

The Time Base circuit incorporates an oscillation circuit of 40 MHz. The sampling clock corresponding to the TIME/DIV selection switch is produced from the basic clock, and distributed to the A/D converting circuit.
The circuit also executes the sampling end control and pretrigger sampling control.

MICRO PROCESSING CIRCUIT

The Micro Processing circuit is composed of key device Z-80, ROM of 20 kW, RAM of 10 kW and address decorder circuit. ROM is used as program area, and 8 kW of RAM is used as two SAVE memories. The address decorder circuit generates control signals that controls the other circuits.
The Micro Processing circuit controls almost all the storage operations such as reading the switch information on the panel, display control of LEDs, switching control of storage mode and display mode, starting control of data sampling, and data transmission.

DISPLAY MEMORY

The data of waveforms displayed on the CRT are stored in the Display Memory. In the case of NORM mode, ROLL mode and AVERAGE mode, the waveform data are transferred to the Display Memory and written in the memory by the microprocessor every time the new data is accumulated in the Acquisition Memory. The waveform displayed on the CRT is renewed one after another.
In the case of HOLD mode, the new data is not written in the Display Memory, and the last data left before HOLD mode is held.
The data is read out from the Display Memory one after another by the control of the CRT Controller LSI so that the waveform is displayed on the CRT. The CRT Controller LSI also controls the timing of the digital sweep signal and the display of cursor dot.
Only when the TIME/DIV switch is set within the range of Repeat Only, the clock which is used to sample data (Equivalent Sample clock) is generated by applying the sawtooth waveform obtained in the Sweep Generator circuit. The Display Memory contains the circuit which generates the Equivalent Sample clock.

PANEL CONTROLLER

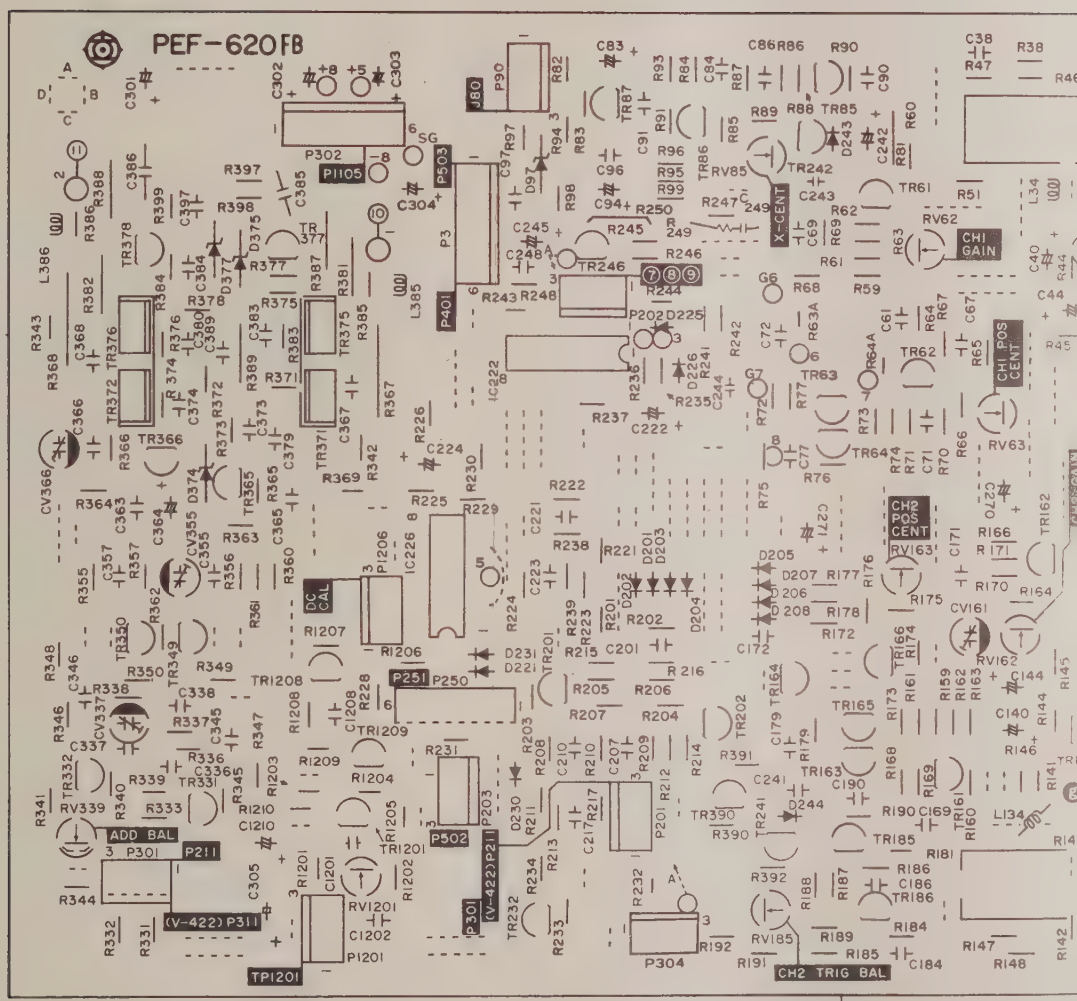
The Panel Controller is an Interface circuit which reads the switching information on the panel by the microprocessor, and controls the display of LEDs.

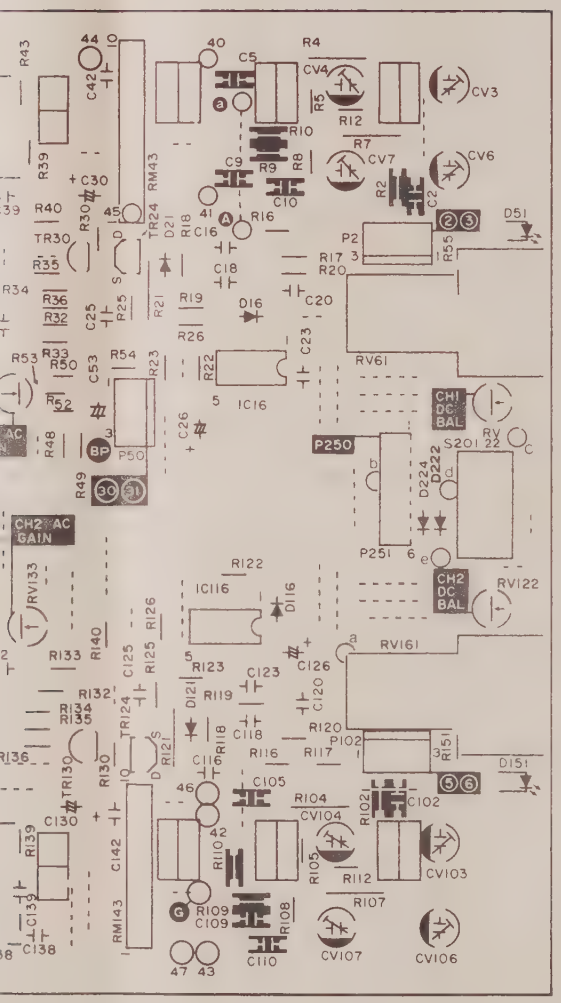
PLOT OUT CONTROLLER

The Plot Out controller provides analog waveform signal so that the chart recorder and the X-Y recorder record the waveform on the CRT, and also provides PEN LIFT signal to control the pen UP/DOWN remotely.

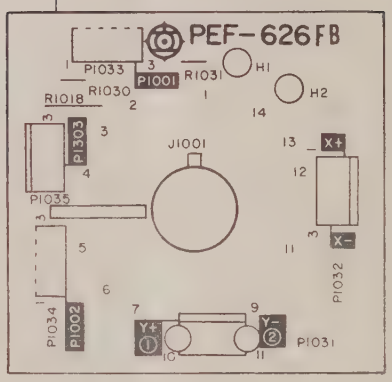
6. ELECTRICAL PARTS ARRANGEMENT

PEF-620FB





PEF-626FB



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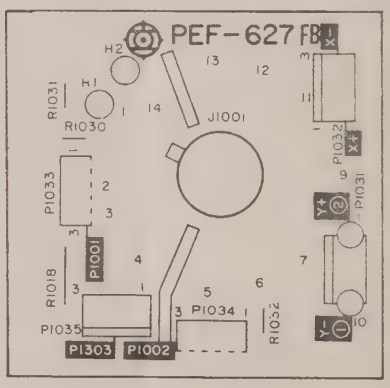

TRACE ROT
X GAIN
SWP START
TO PEF-657
TRG CENT
P802
P471
P3
L1350
P1110
P1350
S501-1
S501-2
P473
IC502
L581
L432
P401
S403
S401
S418
RV1348
RV540
RV805
RV418
RV473
TR1348
TR1349
TR520
TR522
TR521
TR503
TR514
TR532
TR401
TR402
D543
D530
D520
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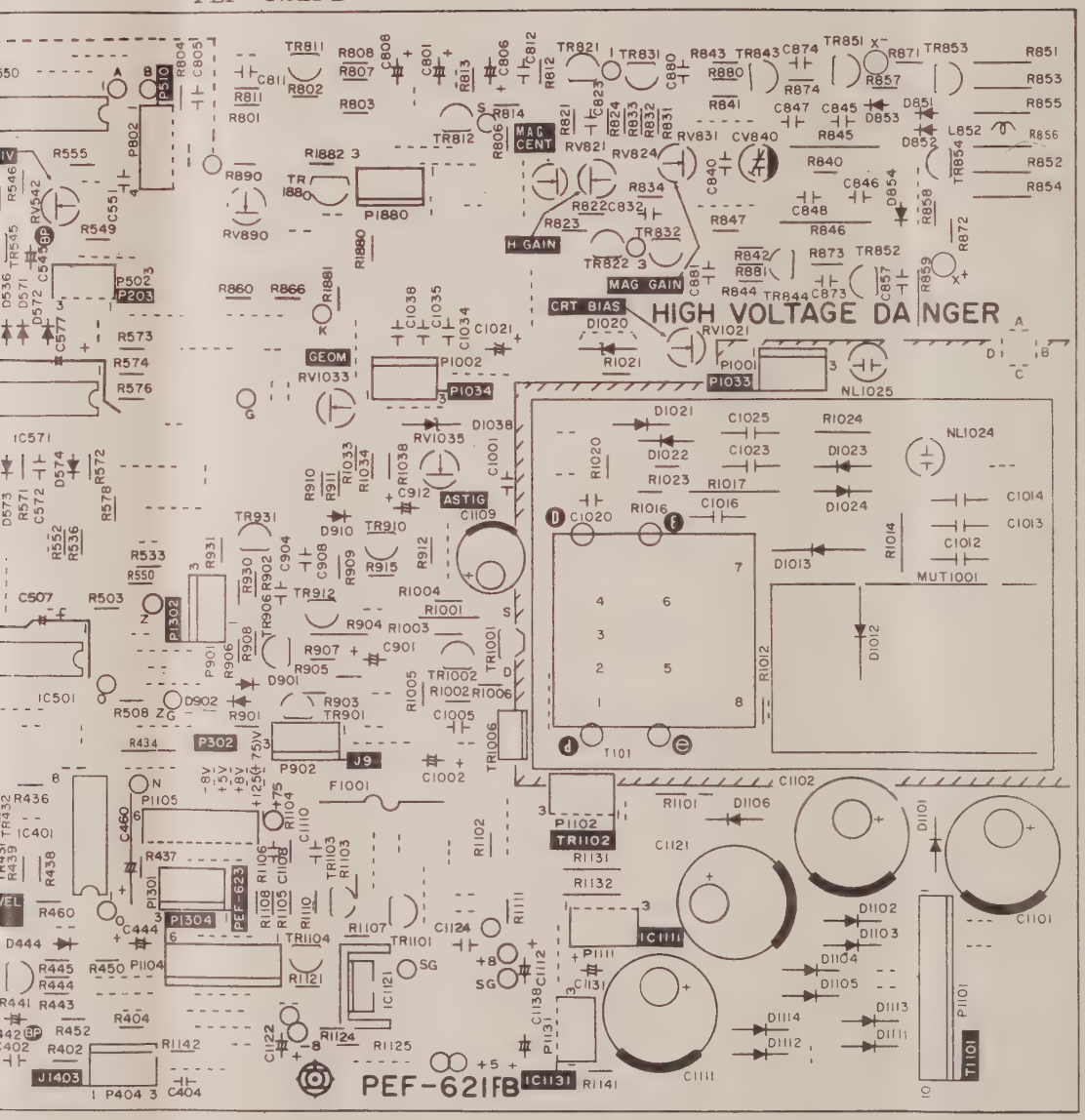
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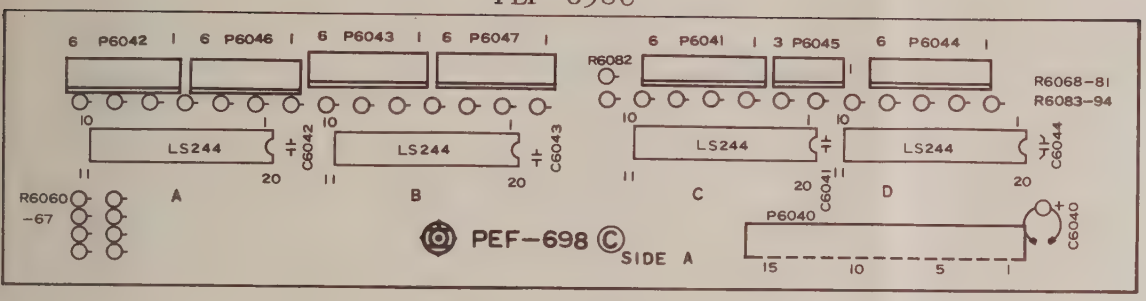
PEF-698C



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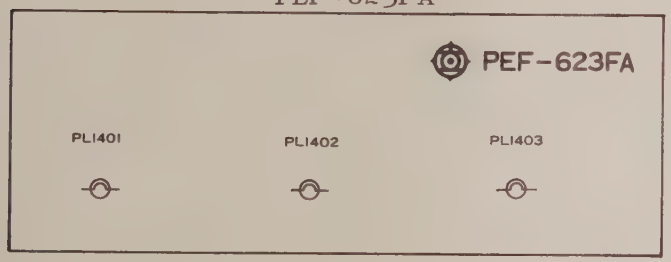

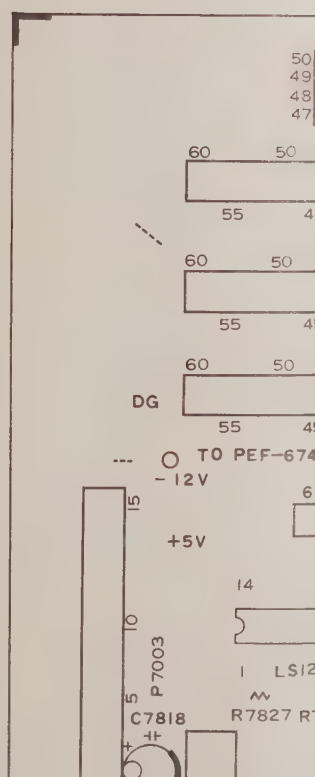

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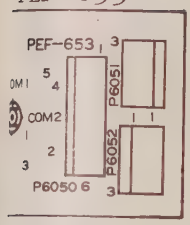

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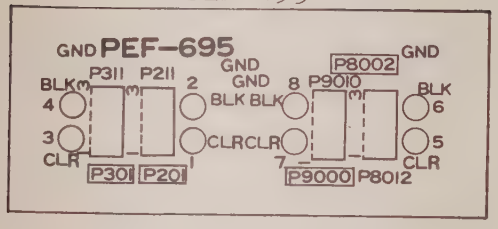

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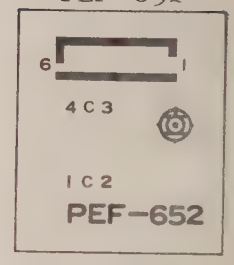

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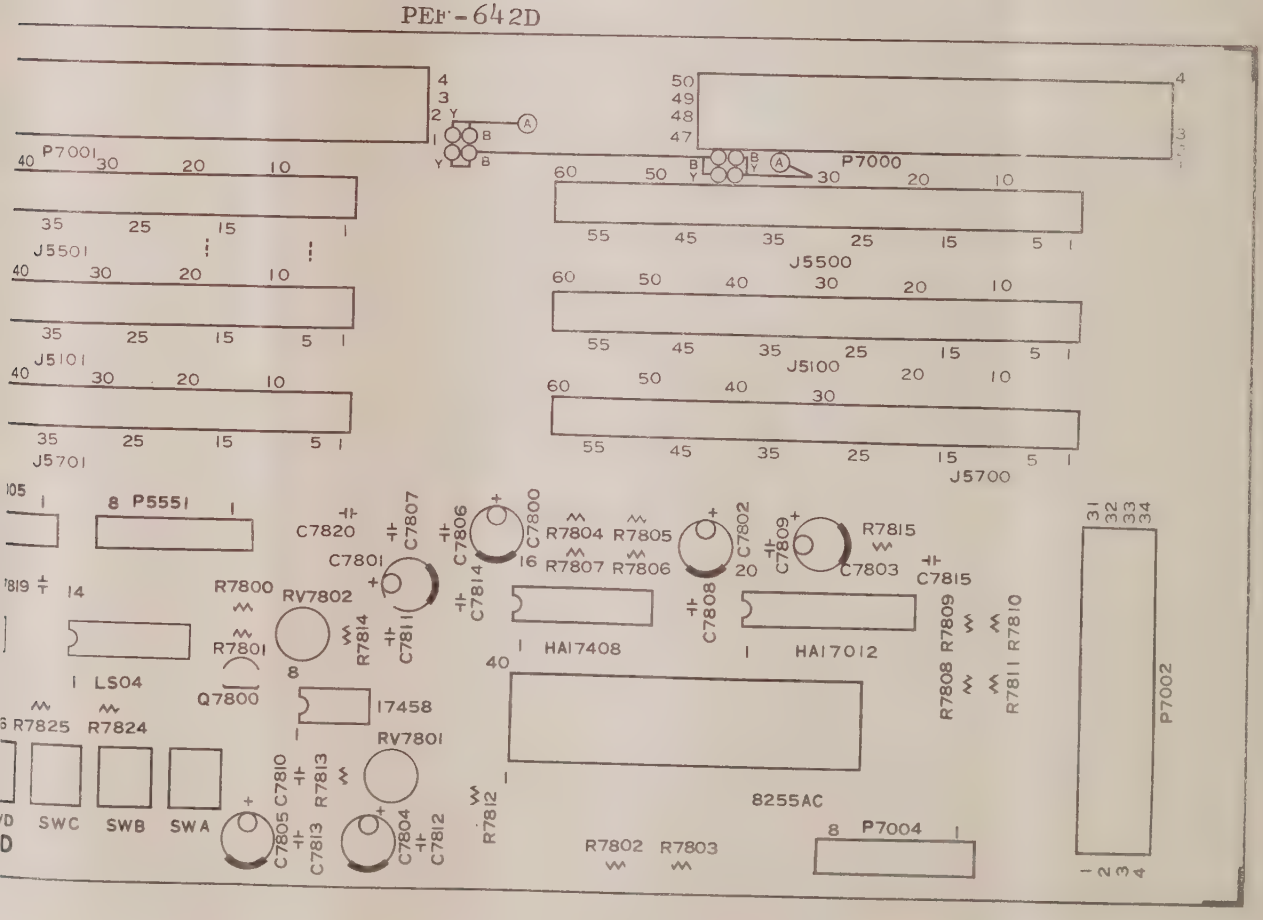

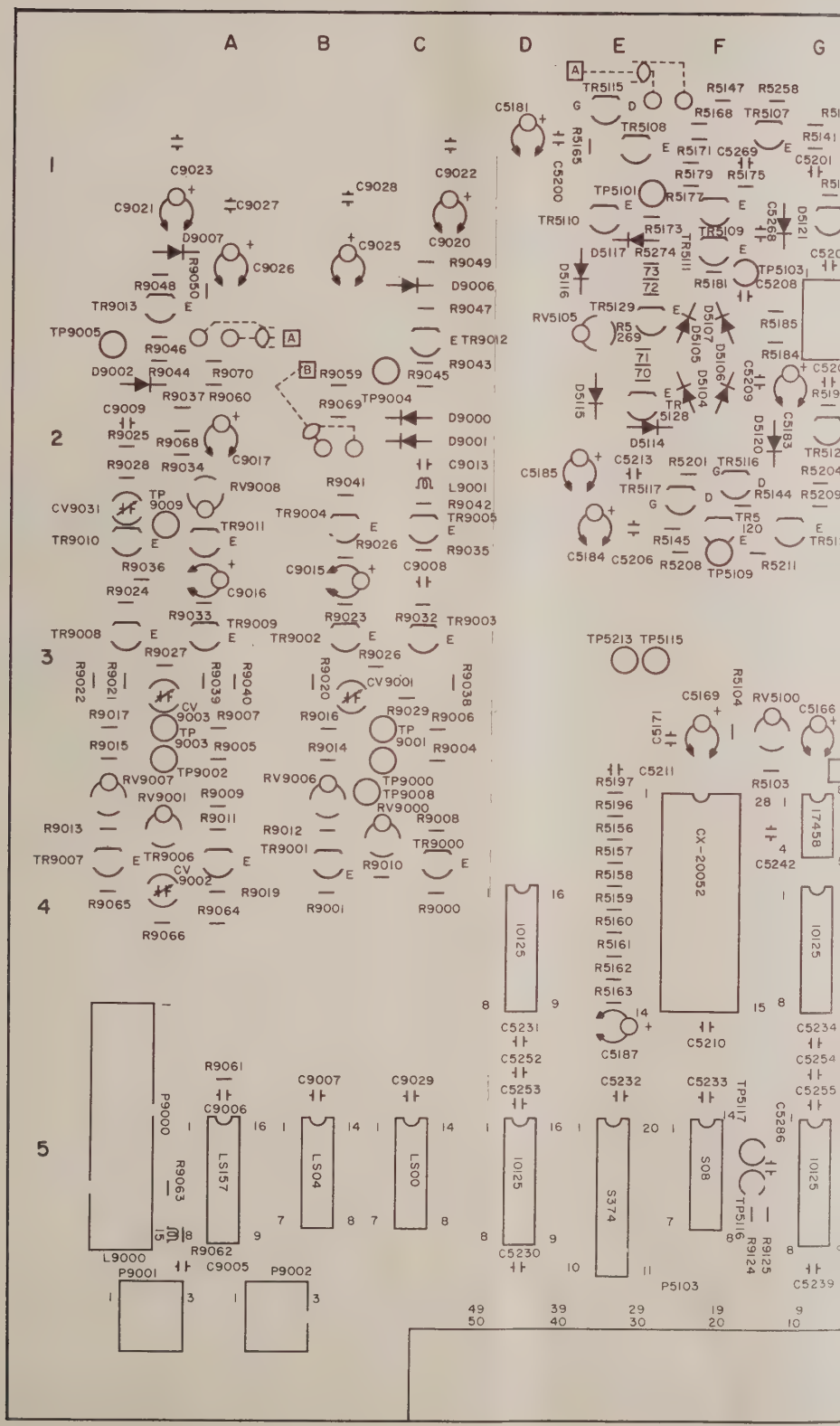
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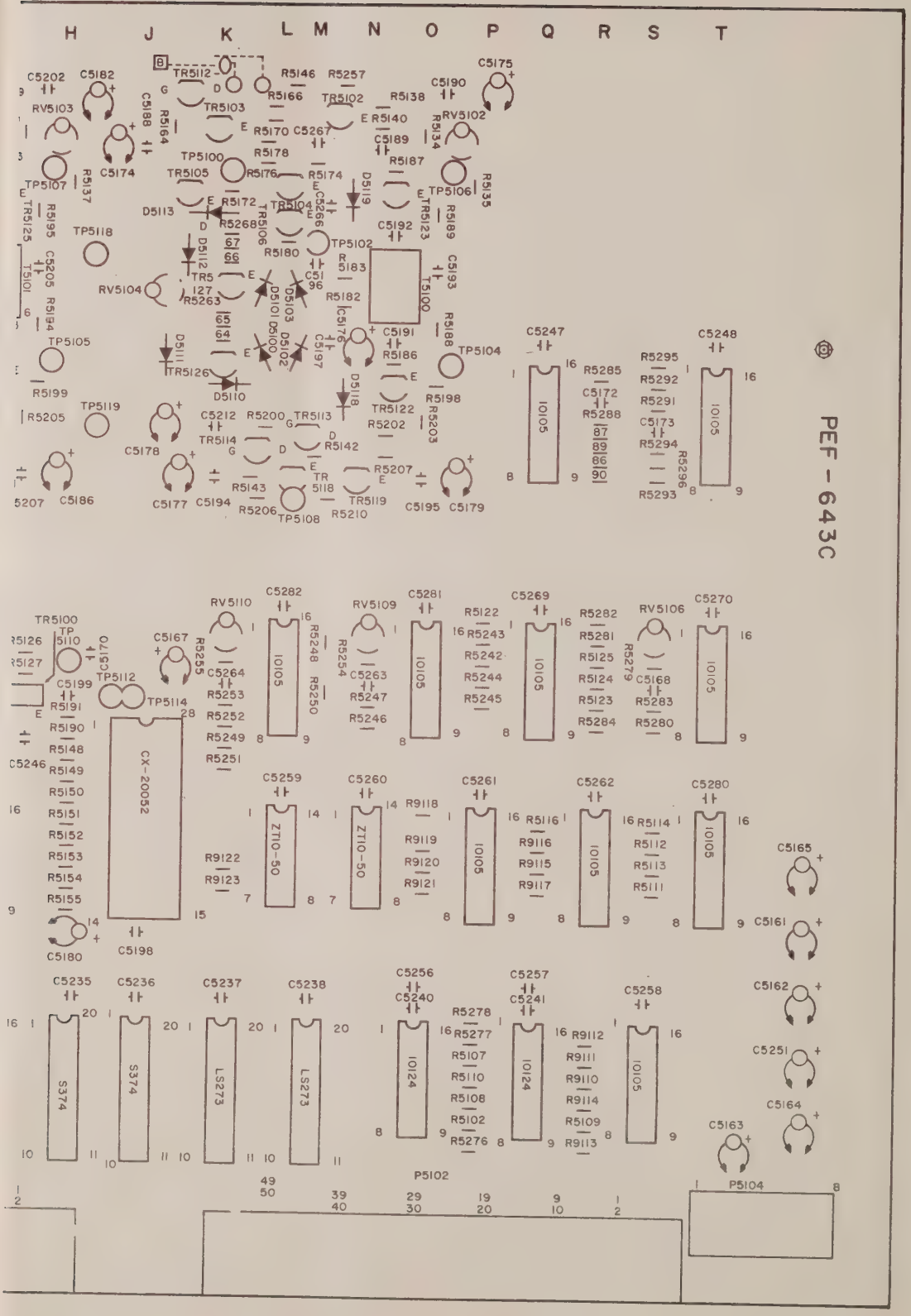
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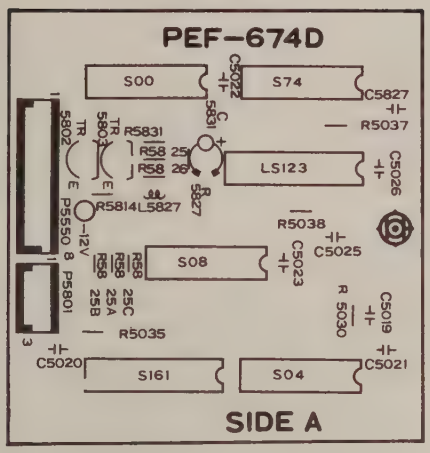
PEF-674D



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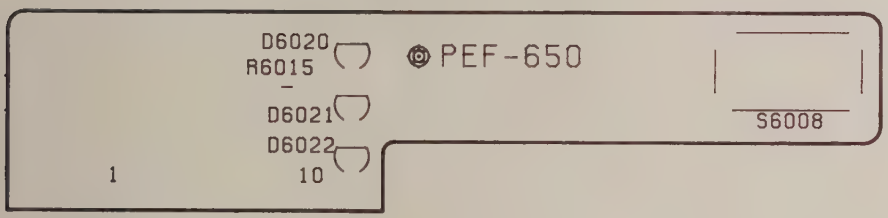
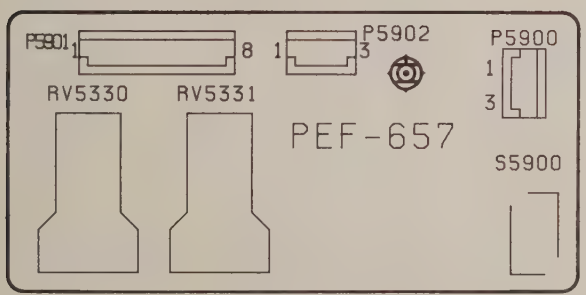
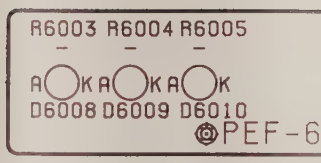
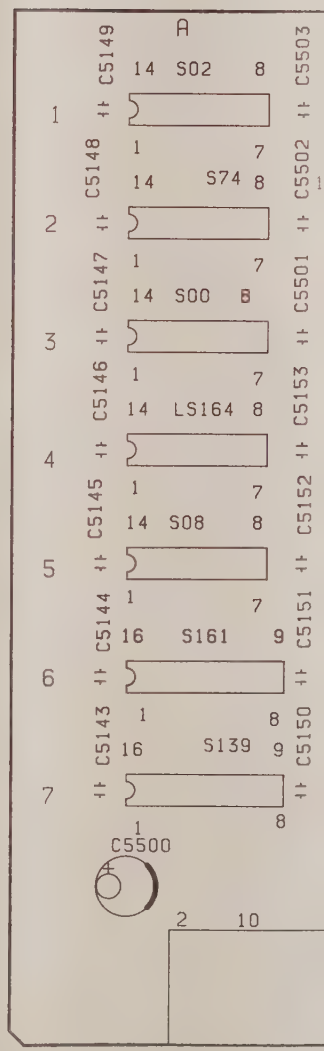


PEF-657

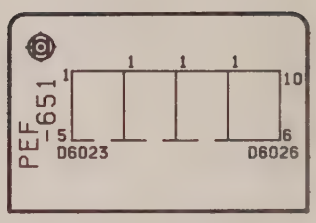




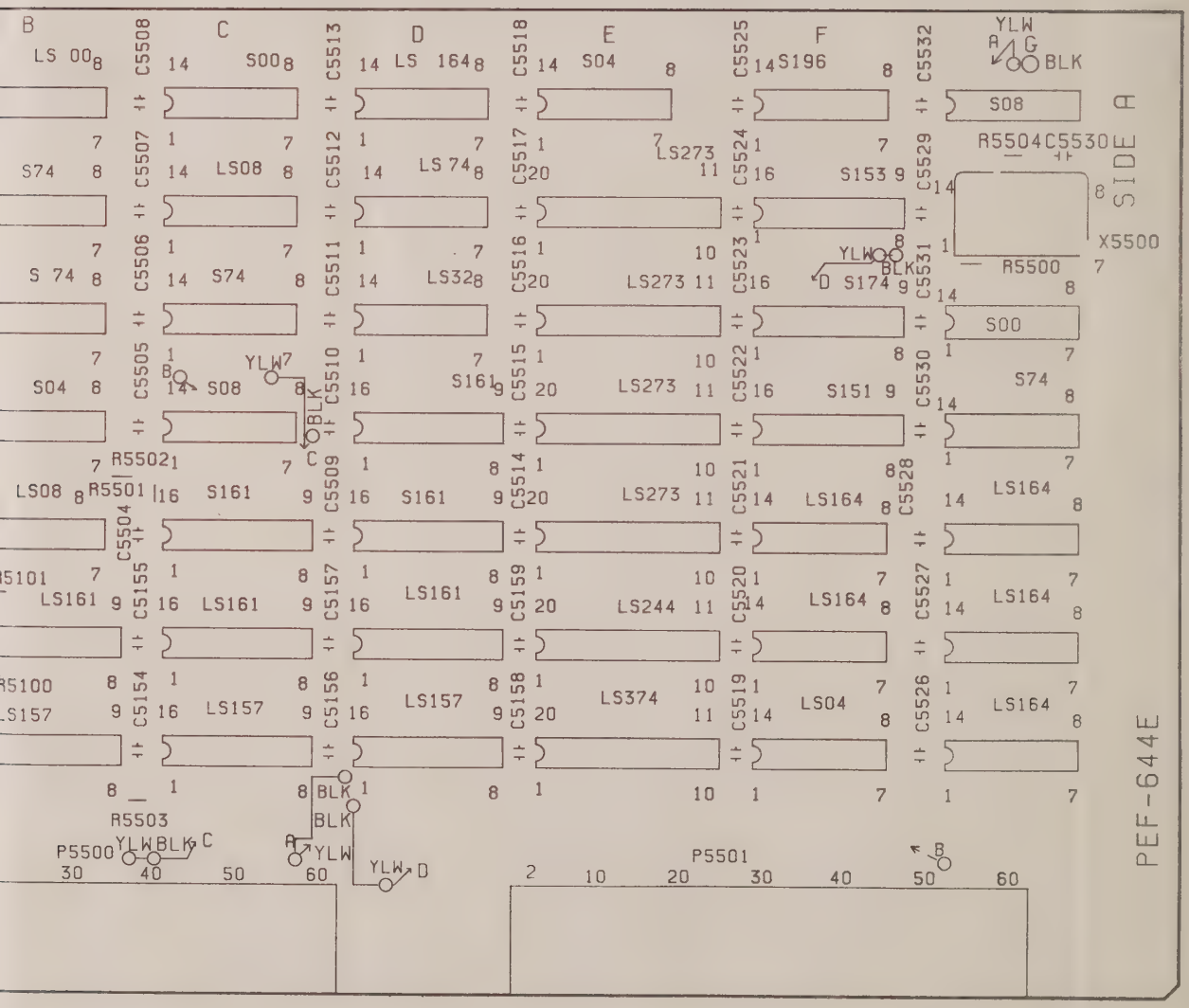


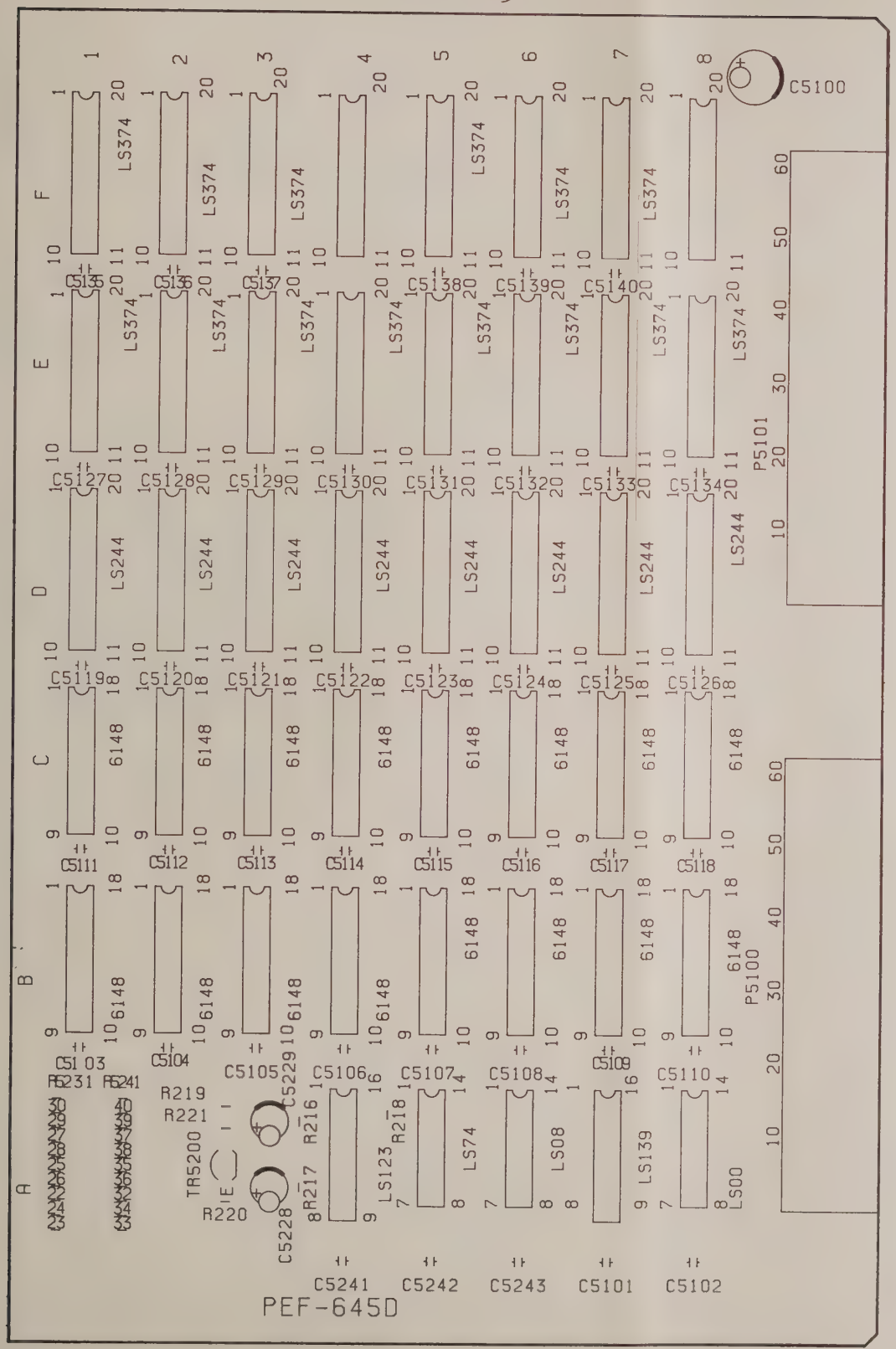
PEF-649

PEF-651



PEF-644E

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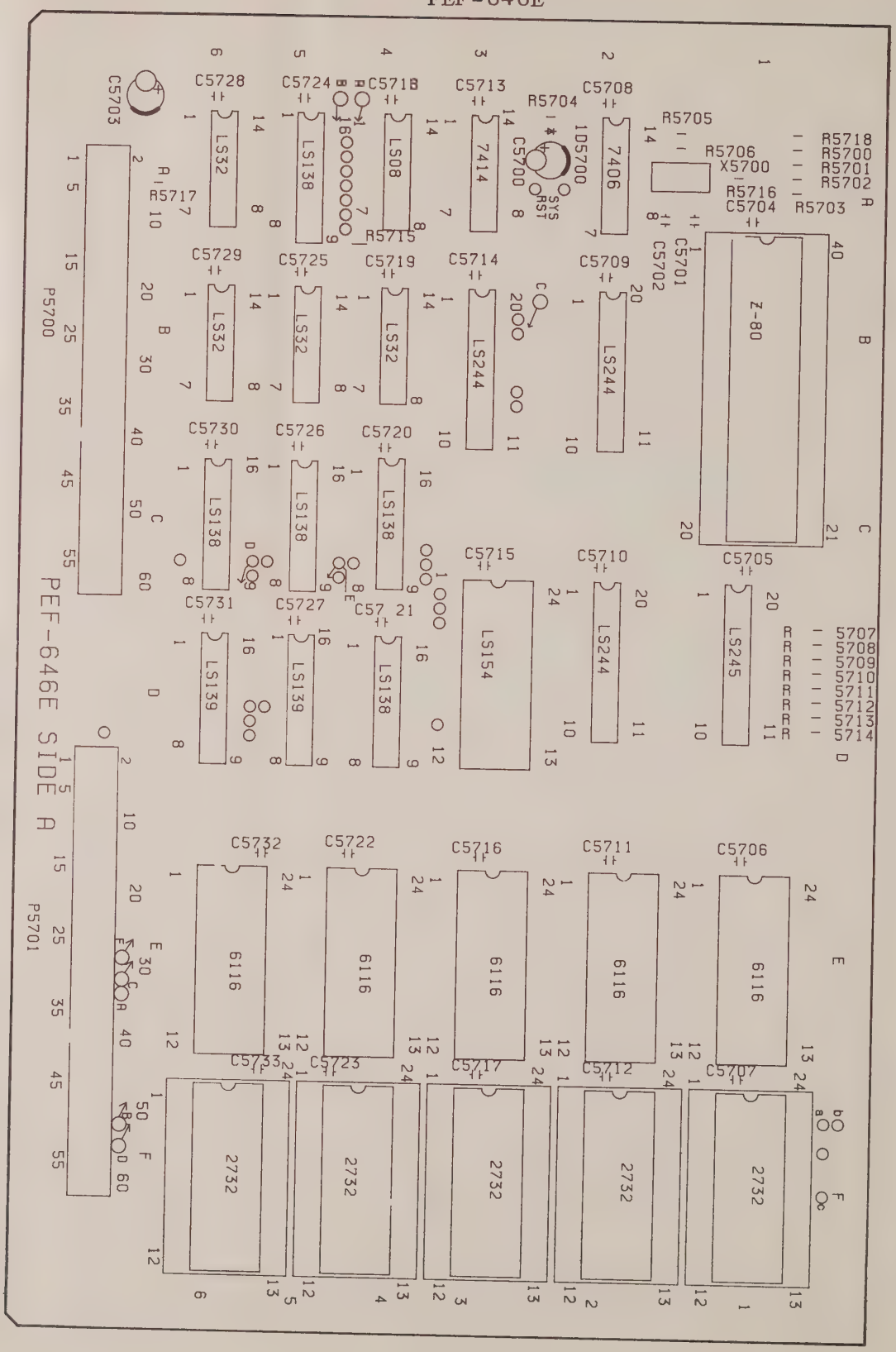
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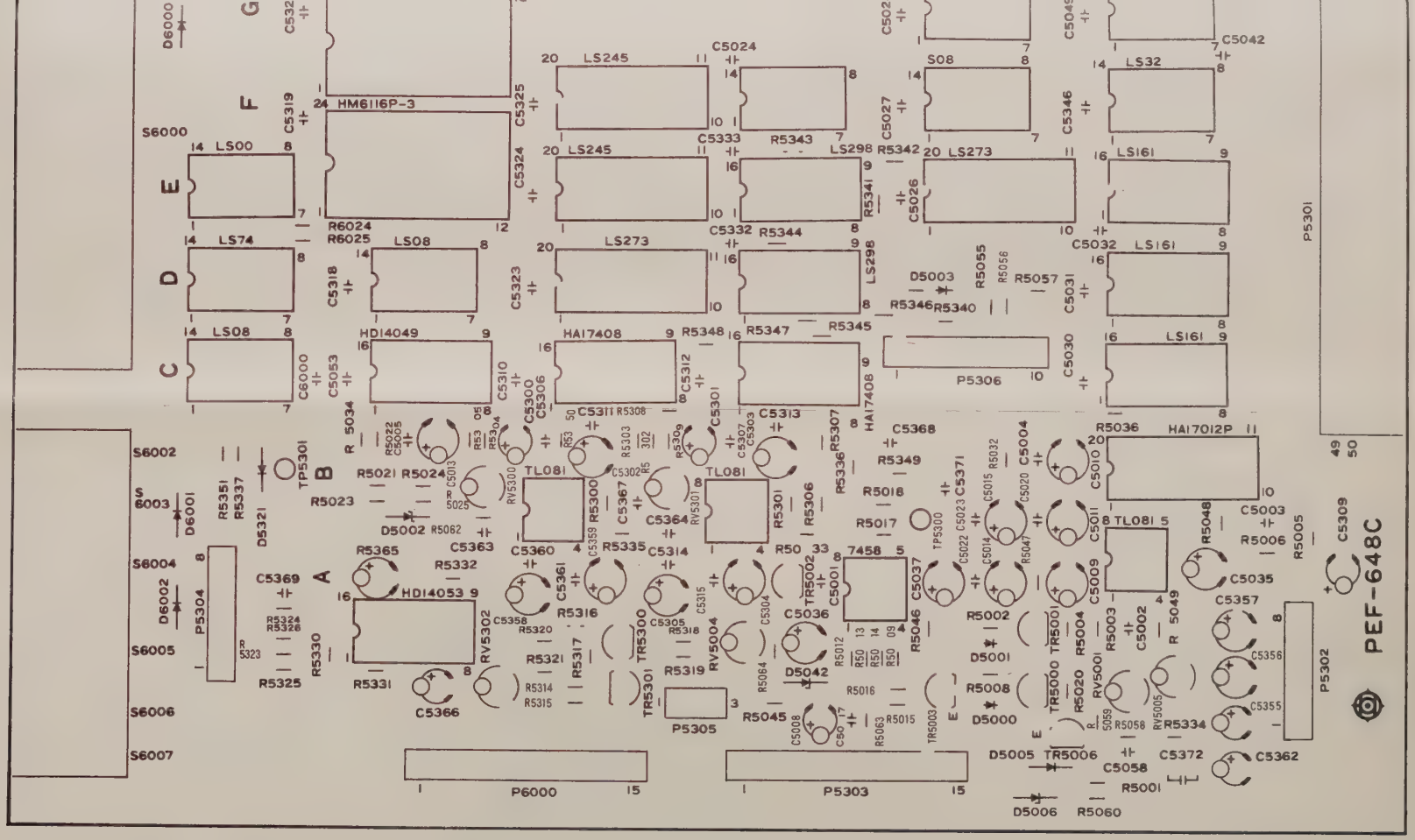
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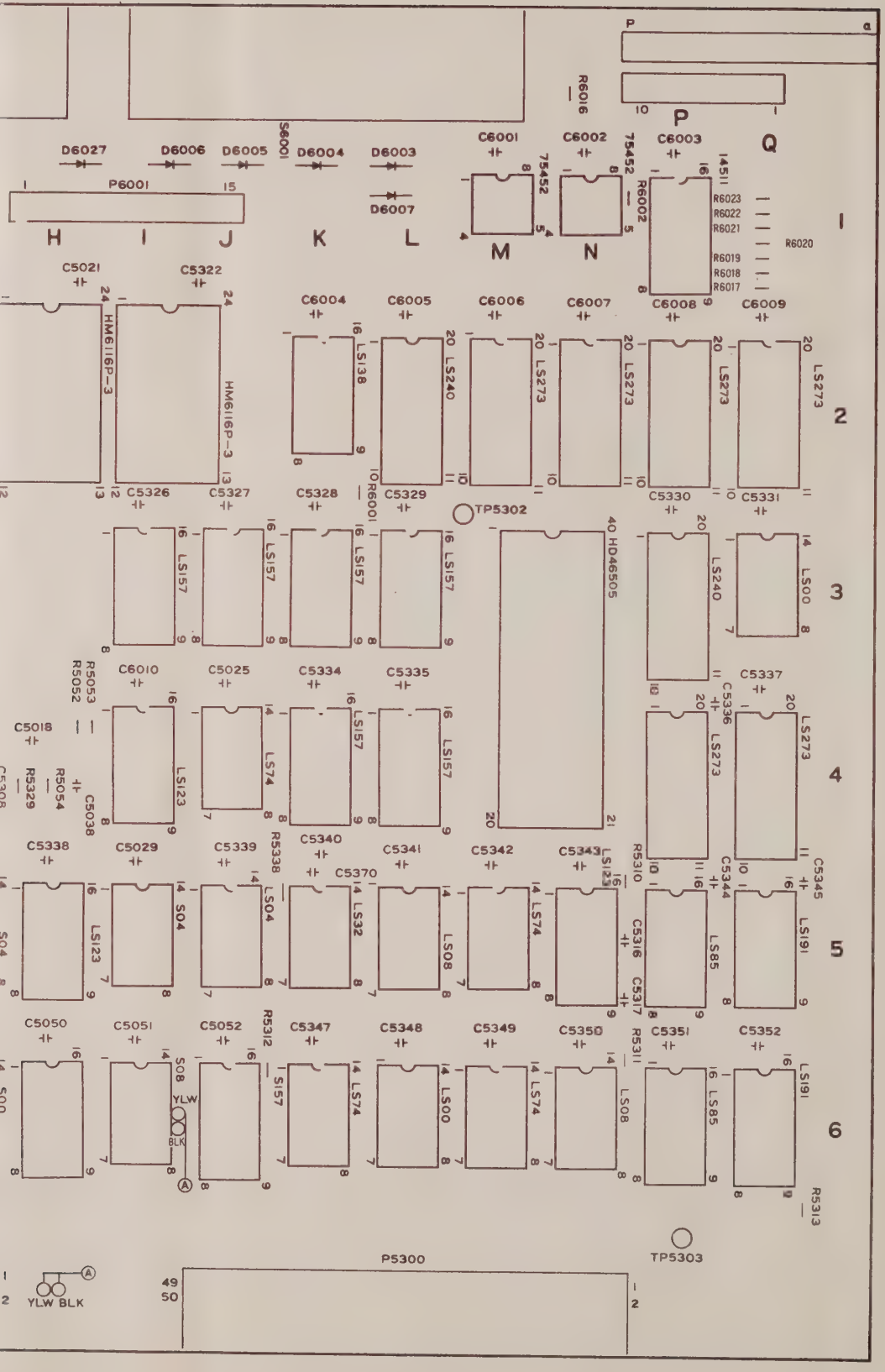
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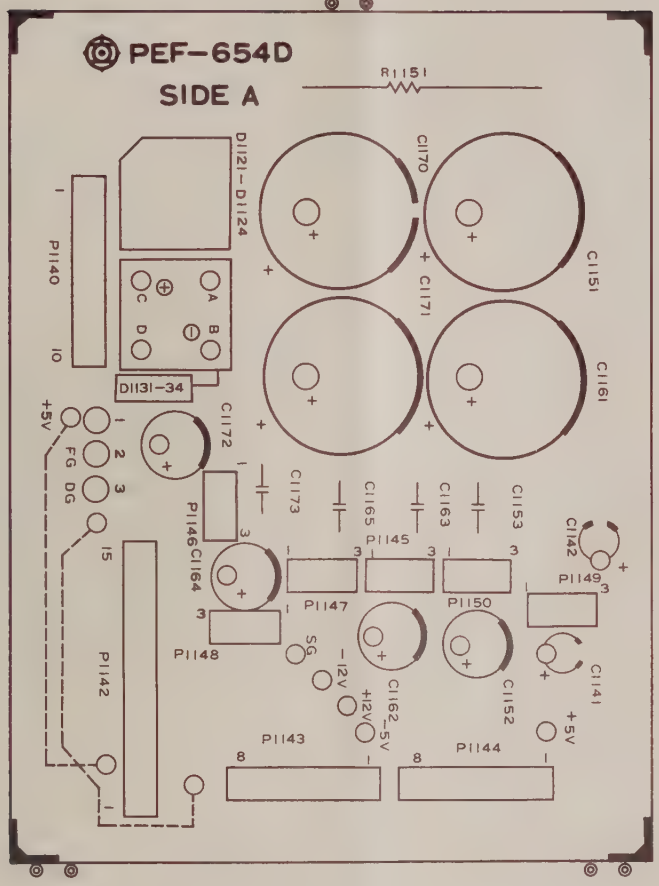
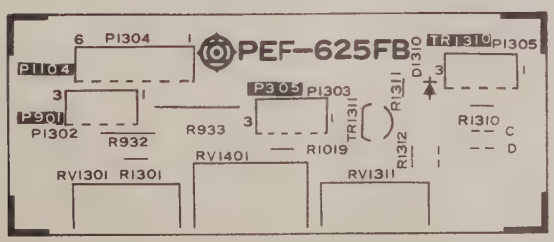
YLW BLK

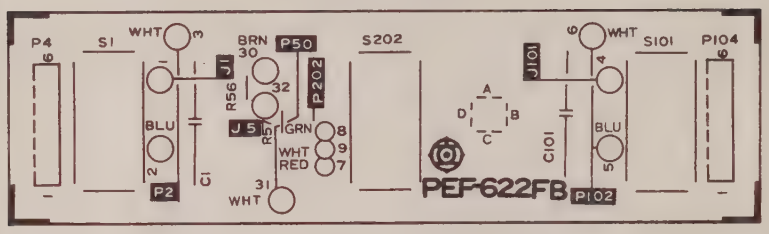
PEF-654D



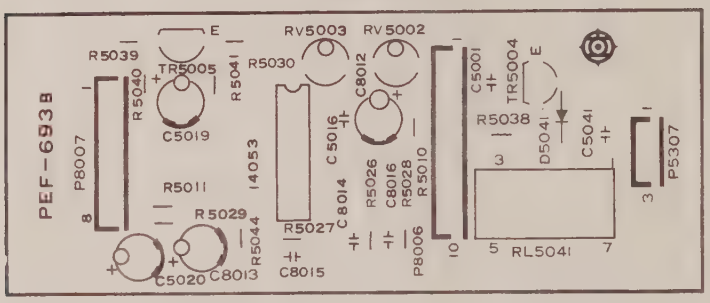
PEF-625FB



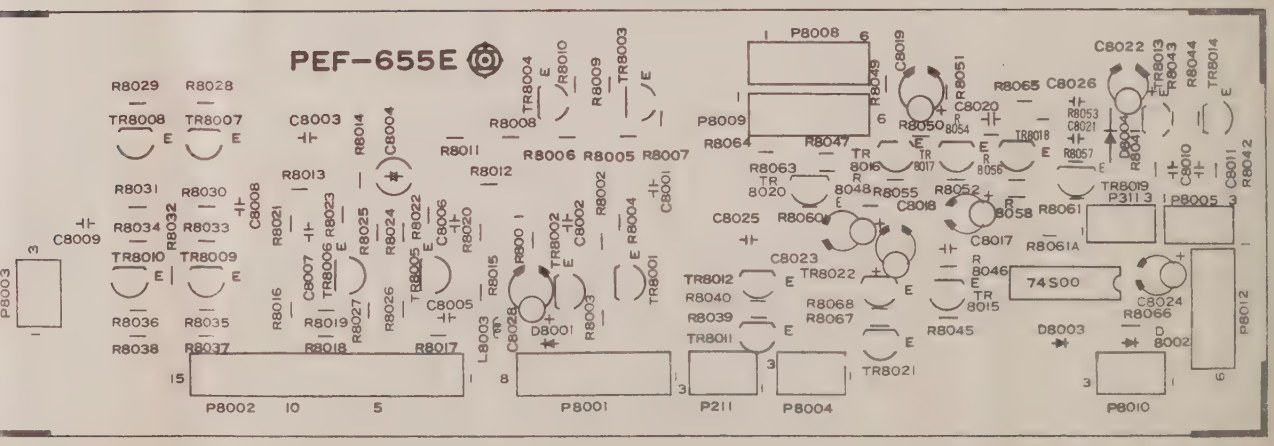
PEF-622FB



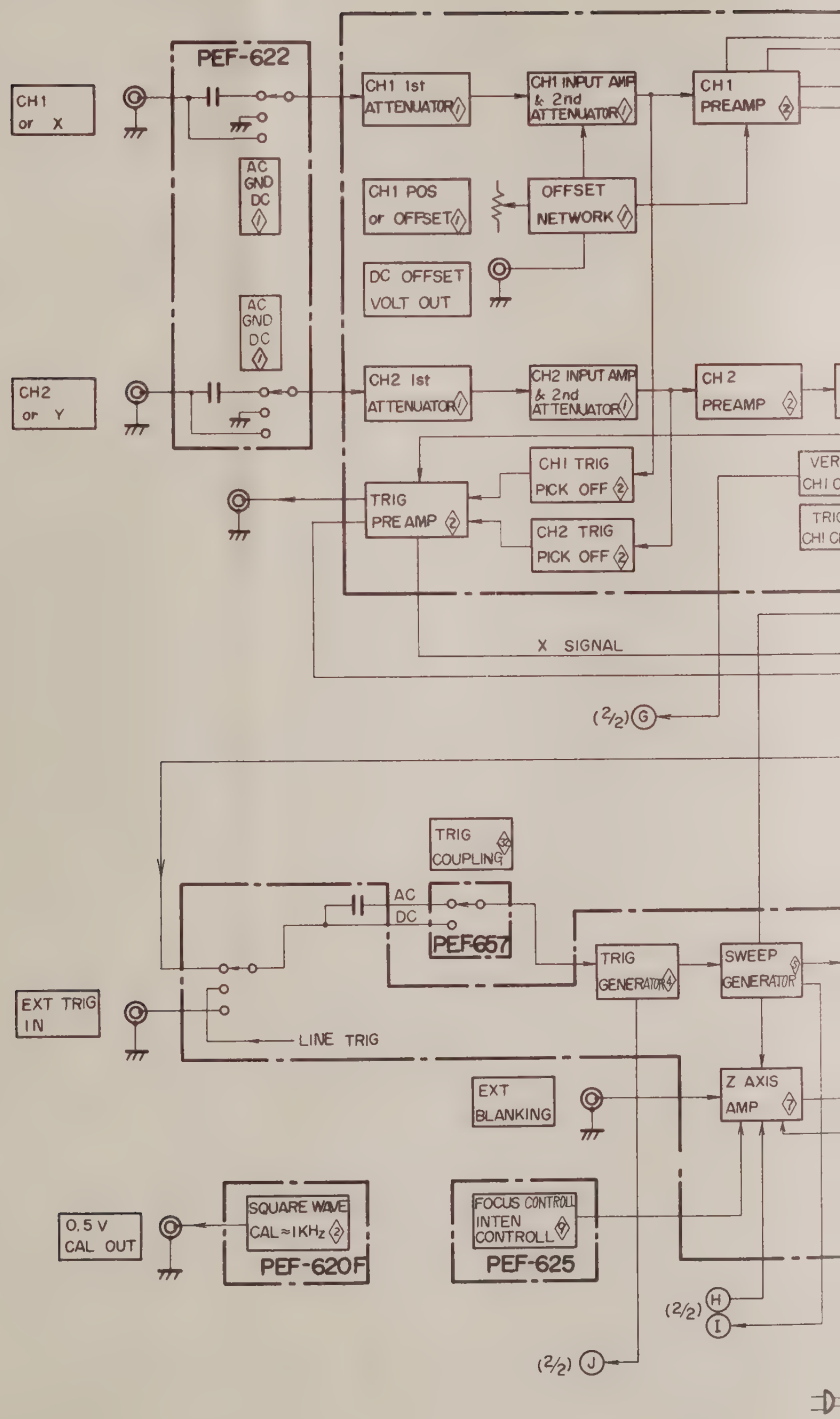
PEF-693B

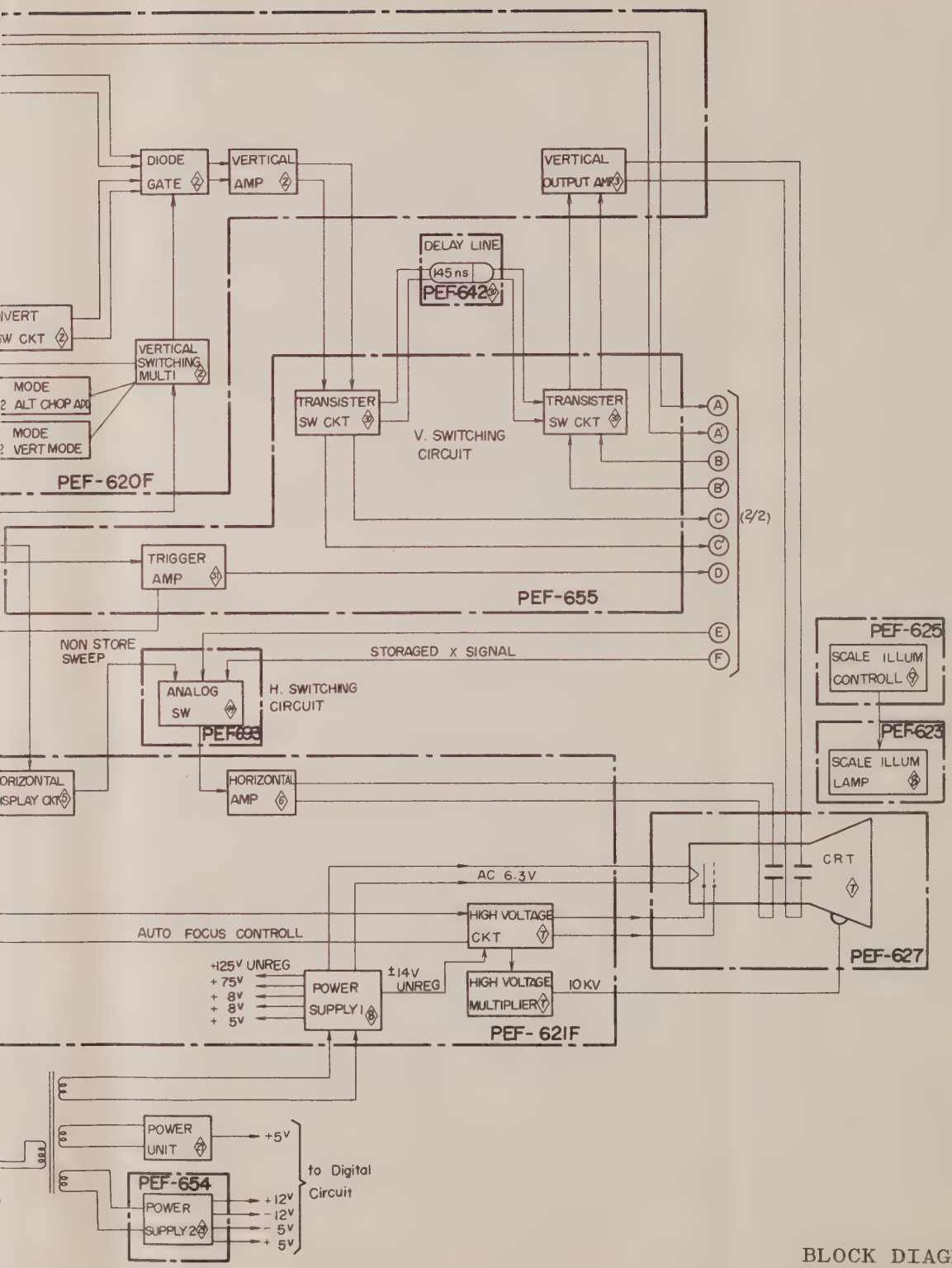


PEF-655E

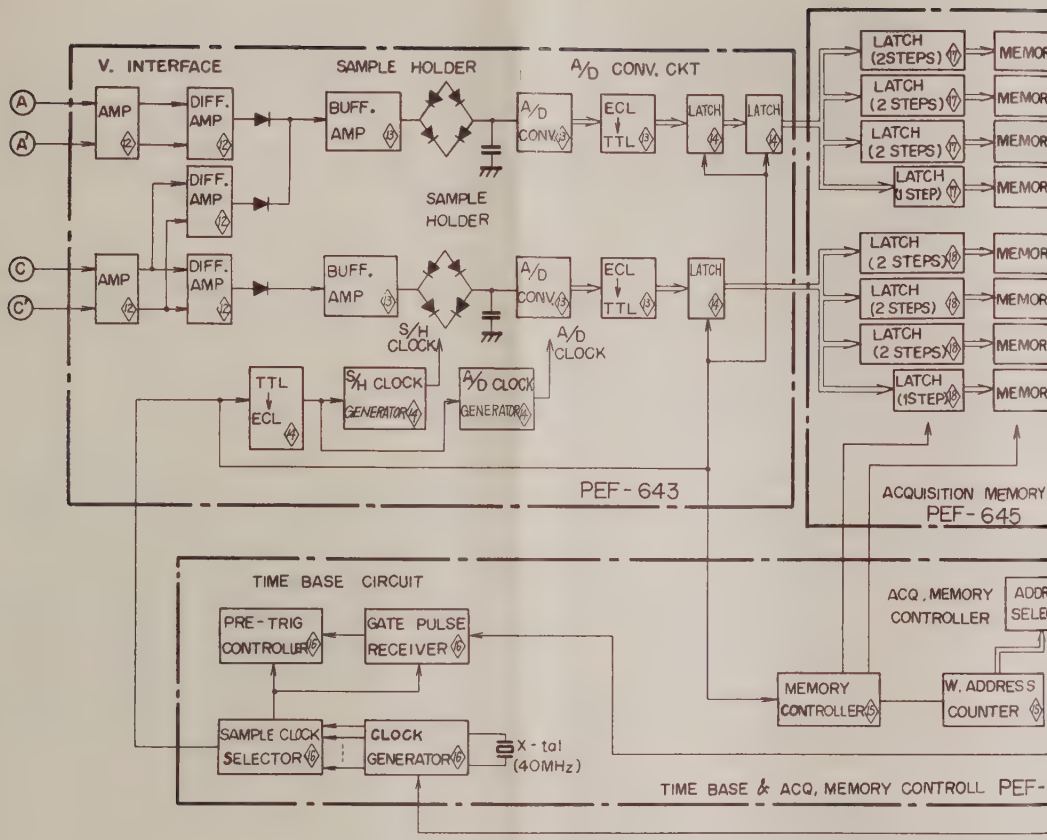


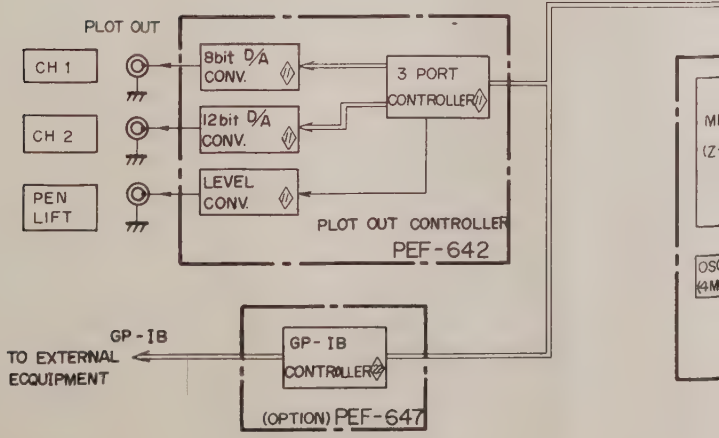
7. BLOCK DIAGRAMS

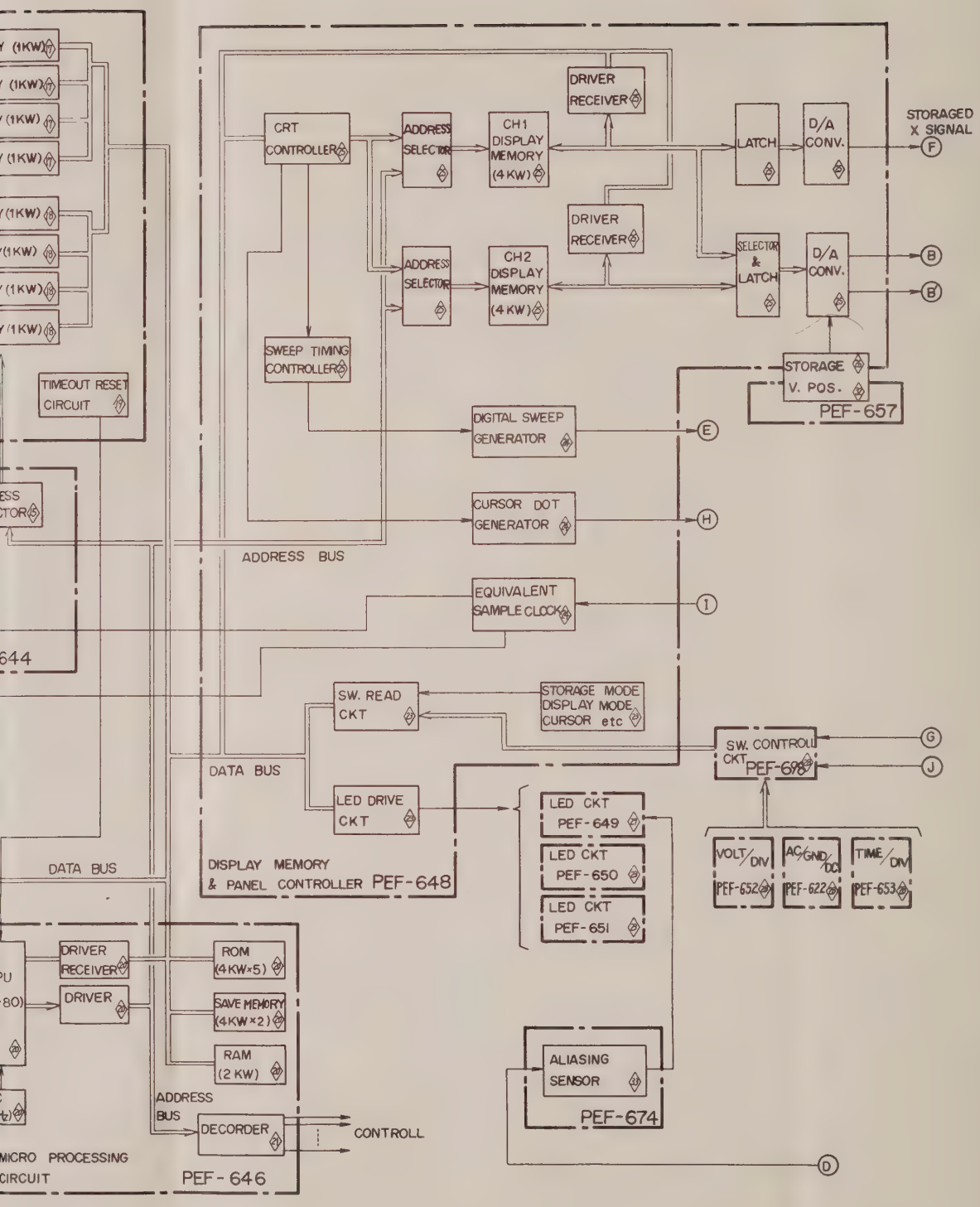




BLOCK DIAGRAM 1/2


V. INTERFACE
SAMPLE HOLDER
A/D CONV. CKT
A
A'
C
C'
AMP
DIFF. AMP
BUFF. AMP
SAMPLE HOLDER
A/D CONV.
ECL TTL
LATCH
LATCH (2STEPS)
LATCH (2 STEPS)
LATCH (1 STEP)
MEMOR
S/H CLOCK
A/D CLOCK
TTL ECL
S/H CLOCK GENERATOR
A/D CLOCK GENERATOR
PEF-643
ACQUISITION MEMORY
PEF-645
TIME BASE CIRCUIT
PRE-TRIG CONTROLLER
GATE PULSE RECEIVER
SAMPLE CLOCK SELECTOR
CLOCK GENERATOR
X-tal (40MHz)
ACQ. MEMORY CONTROLLER
MEMORY CONTROLLER
W. ADDRESS COUNTER
TIME BASE & ACQ. MEMORY CONTROLL PEF-


PLOT OUT
CH 1
CH 2
PEN LIFT
8bit D/A CONV.
12bit D/A CONV.
LEVEL CONV.
3 PORT CONTROLLER
PLOT OUT CONTROLLER
PEF-642
GP-IB
TO EXTERNAL EQUIPMENT
GP-IB CONTROLLER
(OPTION) PEF-647



BLOCK DIAGRAM 2/2

9. ELECTRICAL PARTS LIST

1 INPUT AMP

CH1 & CH2 input

Symbol	Part Code	Description	Remarks
C 1	CQX0068	C, Plastic 400V 0.047μF ±10%	
C 101	CQX0068	C, Plastic 400V 0.047μF ±10%	
S 1	8393985	SW, Lever, SLE623	
S 101	8393985	SW, Lever, SLE623	
S 202	8393985	SW, Lever, SLE623	
R 56	RME1157	R, Metal 1/4W 16.0kΩ ±0.5%	
R 57	RME1155	R, Metal 1/4W 4.00kΩ ±0.5%	

CH1 1st attenuator

Symbol	Part Code	Description	Remarks
R 2	RME0860	R, MET Chip 1/8W 47Ω ±5%	
R 4	RME0043	R, Metal 1/4W 900kΩ ±0.5%	
R 5	RME1163	R, Metal 1/4W 111kΩ ±0.5%	
R 7	RMS0044	R, Metal 1/4W 990kΩ ±0.5%	
R 8	RME1156	R, Metal 1/4W 10.1kΩ ±0.5%	
R 9	RME0852	R, MET, Chip 1/8W 10Ω ±5%	
R 10	RME0864	R, MET, Chip 1/8W 100Ω ±5%	
R 12	RCE0749	R, Carbon 1/4W 22Ω ±5%	
C 2	CCG0132	C, Ceramic Chip 50V 22pF ±5%	
C 5	CCG0139	C, Ceramic Chip 50V 47pF ±5%	
C 9	CCG0144	C, Ceramic Chip 50V 220pF ±5%	
C 10	CCG0142	C, Ceramic Chip 50V 82pF ±5%	

CH1 input amp & 2nd attenuator

Symbol	Part Code	Description	Remarks
R 16	RME1168	R, Metal 1/4W 500kΩ ±0.5%	
R 17	RME1168	R, Metal 1/4W 500kΩ ±0.5%	
R 18	RME0757	R, Carbon 1/4W 100Ω ±5%	
R 19	RCE0793	R, Carbon 1/4W 100kΩ ±5%	
R 20	RCE0793	R, Carbon 1/4W 100kΩ ±5%	
R 21	RSE0434	R, Solid 1/4W 10MΩ ±5%	
R 22	RCE0791	R, Carbon 1/4W 68kΩ ±5%	
R 23	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 25	RCE0755	R, Carbon 1/4W 68Ω ±0.5%	
R 26	RME1079	R, Metal 1/4W 3.92kΩ ±1%	
R 30	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 32	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 34	RME1145	R, Metal 1/4W 60.0Ω ±0.5%	
R 35	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 36	RME1154	R, Metal 1/4W 600Ω ±0.5%	
R 38	RCE0762	R, Carbon 1/4W 270Ω ±5%	
R 40	RCE0745	R, Carbon 1/4W 10Ω ±5%	
R 41	RCE0745	R, Carbon 1/4W 10Ω ±5%	
R 42	RCE0764	R, Carbon 1/4W 390Ω ±5%	
R 43	RCE0767	R, Carbon 1/4W 680Ω ±5%	
R 44	RCE0765	R, Carbon 1/4W 470Ω ±5%	

Symbol	Part Code	Description	Remarks
R 45	RCE0745	R, Carbon 1/4W 10Ω ±5%	
R 46	RME1157	R, Metal 1/4W 16.0kΩ ±0.5%	
R 47	RME1162	R, Metal 1/4W 80.0kΩ ±0.5%	
R 48	RME1157	R, Metal 1/4W 16.0kΩ ±0.5%	
R 49	RME1155	R, Metal 1/4W 4.00kΩ ±0.5%	
R 50	RME1157	R, Metal 1/4W 16.0kΩ ±0.5%	
R 51	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 52	RME1069	R, Metal 1/4W 562Ω ±1%	
R 53	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 54	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 55	RCE0771	R, Carbon 1/4W 1.5kΩ ±5%	
RM 43	3173846	R, Block For ATT	
C 16	CCD0286	C, Ceramic 500V 1000pF +100 -0%	
C 18	CCC0996	C, Ceramic 50V 2pF ±0.25%	
C 20	CCC1014	C, Ceramic 50V 47pF ±5%	
C 23	CQA0091	C, Plastic 50V 0.001μF ±10%	
C 25	CCC1014	C, Ceramic 50V 47pF ±5%	
C 26	CES0028	C, Alelyc 10V 47μF ±20%	
C 30	CES0028	C, Alelyc 10V 47μF ±20%	
C 32	CCC1002	C, Ceramic 50V 10pF ±0.5%	
C 40	CES0028	C, Alelyc 10V 47μF ±20%	
C 42	CCC1007	C, Ceramic 50V 22pF ±5%	
C 44	CES0028	C, Clelyc 10V 47μF ±20%	
C 53	CEX0563	C, Alelyc 16V 10μF BP	
CV 3	CVE0046	C, Variable ECR-HA010A11	
CV 4	CVE0050	C, Variable ECR-HA007A11	
CV 6	CVE0046	C, Variable ECR-HA010A11	
CV 7	CVE0048	C, Variable ECR-HA003A11	
ATT 1	8402067A	SW, Rotary ADR-255S 18R (10P)	
RV 22	RNE0057	VR, Metal EVN49C00YB54 (50k)	
RV 33	RNE0048	VR, Metal EVN39C00YB22 (200)	
RV 61	RDE0003	VR, Metal EVN-YK3325B14	
TR 24	HTK0099	Transistor 2SK404E	
TR 30	HTC0557	Transistor 2SC1674K	
TR 40	HTA0224	Transistor 2SA1029D	
L 34	TLE0107	Coil ELE-VR47MA	
IC 16	8397023	IC LF411CN	
D 16	HDS0437	Diode 1SS133	
D 21	HDS0477	Diode 1SS110	
D 51	HDS0407	Diode SR503D (RED)	

DC offset network

Symbol	Part Code	Description	Remarks
R 48	RME1157	R, Metal 1/4W 16.0kΩ ±0.5%	
R 49	RME1155	R, Metal 1/4W 4.00kΩ ±0.5%	
R 50	RME1157	R, Metal 1/4W 16.0kΩ ±0.5%	
R 51	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 52	RME1069	R, Metal 1/4W 562Ω ±5%	
R 53	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 54	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 55	RCE0771	R, Carbon 1/4W 1.5kΩ ±5%	
R 56	RME1157	R, Metal 1/4W 16.0kΩ ±0.5%	
R 57	RME1155	R, Metal 1/4W 4.00kΩ ±0.5%	
RV 61	RDE0003	VR, Carbon EVH-VK3325B14	

CH2 1st attenuator

Symbol	Part Code	Description	Remarks
R 102	RME0860	R, MET, Chip 1/8W 47Ω ±5%	
R 104	RMS0043	R, Metal 1/4W 900kΩ ±0.5%	
R 105	RME1163	R, Metal 1/4W 111kΩ ±0.5%	
R 107	RMS0044	R, Metal 1/4W 990kΩ ±1%	
R 108	RME1156	R, Metal 1/4W 10.1kΩ ±0.5%	
R 109	RME0852	R, MET, Chip 1/8W 10Ω ±5%	
R 110	RME0864	R, MET, Chip 1/8W 100Ω ±5%	
R 112	RCE0749	R, Carbon 1/4W 22Ω ±5%	
C 102	CCG0132	C, CER, Chip 50V 22 pF ±5%	
C 105	CCG0139	C, CER, Chip 50V 47 pF ±5%	
C 109	CCG0144	C, CER, Chip 50V 220 pF ±5%	
C 110	CCG0142	C, CER, Chip 50V 82 pF ±5%	

CH2 input amp & 2nd attenuator

Symbol	Part Code	Description	Remarks
R 116	RME1168	R, Metal 1/4W 500kΩ ±0.5%	
R 117	RME1168	R, Metal 1/4W 500kΩ ±0.5%	
R 118	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 119	RCE0793	R, Carbon 1/4W 100kΩ ±5%	
R 120	RCE0791	R, Carbon 1/4W 100kΩ ±5%	
R 121	RSE0434	R, Solid 1/4W 10MΩ ±5%	
R 122	RCE0791	R, Carbon 1/4W 68kΩ ±5%	
R 123	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 125	RCE0755	R, Carbon 1/4W 68Ω ±5%	
R 126	RME1079	R, Metal 1/4W 3.92kΩ ±1%	
R 130	RCE0771	R, Carbon 1/4W 2.2kΩ ±5%	
R 132	RCE0745	R, Carbon 1/4W 10Ω ±5%	
R 133	RCE0762	R, Carbon 1/4W 270Ω ±5%	
R 134	RME1145	R, Metal 1/4W 60.0Ω ±0.5%	
R 135	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 136	RME1154	R, Metal 1/4W 600Ω ±0.5%	
R 140	RCE0745	R, Carbon 1/4W 10Ω ±5%	
R 141	RCE0745	R, Carbon 1/4W 10Ω ±5%	
R 142	RCE0761	R, Carbon 1/4W 390Ω ±5%	
R 143	RCE0767	R, Carbon 1/4W 680Ω ±5%	
R 144	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 145	RCE0745	R, Carbon 1/4W 10Ω ±5%	
R 146	RME1157	R, Metal 1/4W 16.0kΩ ±0.5%	
R 147	RME1162	R, Metal 1/4W 80.0kΩ ±0.5%	
R 148	RME1155	R, Metal 1/4W 4.00kΩ ±0.5%	
R 151	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
RM 143	3173846	R, Block For ATT	
C 116	CCD0286	C, Ceramic 500V 1000 pF +100 −0%	
C 118	CCC0996	C, Ceramic 50V 2 pF ±0.25%	
C 120	CCC1014	C, Ceramic 50V 47 pF ±5%	
C 123	CQA0091	C, Plastic 50V 1000 pF ±10%	
C 125	CCC1014	C, Ceramic 50V 47 pF ±5%	
C 126	CES0028	C, Alelyc 10V 47 µF ±20%	
C 130	CES0028	C, Alelyc 10V 47 µF ±20%	
C 132	CCC1002	C, Ceramic 50V 10 pF ±0.5%	
C 140	CES0028	C, Alelyc 10V +47 µF ±20%	
C 142	CCC1007	C, Ceramic 50V 22 pF ±5%	
C 144	CES0028	C, Alelyc 10V 47 µF ±20%	
CV 103	CVE0046	C, Variable ECR-HA010A11	
CV 104	CVE0050	C, Variable ECR-HA007A11	
CV 106	CVE0046	C, Variable ECR-HA010A11	
CV 107	CVE0048	C, Variable ECR-HA003A11	
ATT 101	8402067	SW, Rotary ADR-255S 18R (10P)	
RV 122	RNE0057	VR, Metal EVN49C00YB54 (50k)	
RV 133	RNE0048	VR, Metal EVN39C00YB22 (200)	
TR 124	HTK0099	Transistor 2SK404E	
TR 130	HTC0557	Transistor 2SC1674K	
TR 140	HTA0224	Transistor 2SA1029D	
IC 116	8397023	IC LF411CN	
L 134	TLE0107	Coil ELE-VR47MA	
D 116	HDS0137	Diode 1SS133	
D 121	HDS0477	Diode 1SS110	
D 151	HDS0407	Diode SR503D (RED)	

Panel & others

Symbol	Part Code	Description	Remarks
R 13	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 113	RCE0753	R, Carbon 1/4W 47Ω ±5%	
C 13	CCC1004	C, Ceramic 50V 15pF ±5%	
C 113	CCC1004	C, Ceramic 50V 15pF ±5%	
J 1	JHB0088	CON, Coax BNC071	
J 5		Jack TJ-10A (RED)	
J 101	JHD0088	CON, Coax BNC071	

2 VERT PREAMP TRIG PICKOFF & CH SW MULTI
CH1 preamp

Symbol	Part Code	Description	Remarks
R 59	RCE0759	R, Carbon 1/4W 150Ω ±5%	
R 60	RCE0795	R, Carbon 1/4W 150kΩ ±5%	
R 62	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 63	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 64	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 65	RCE0781	R, Carbon 1/4W 10kΩ ±5%	
R 66	RCE0785	R, Carbon 1/4W 22kΩ ±5%	
R 67	RCE0578	R, Carbon 1/4W 120Ω ±5%	
R 68	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 69	RCE0767	R, Carbon 1/4W 680Ω ±5%	
R 70	RCE0767	R, Carbon 1/4W 680Ω ±5%	
R 71	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 72	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 73	RCE1191	R, Metal 1/4W 432Ω ±1%	
R 74	RME1191	R, Metal 1/4W 432Ω ±1%	
R 75	RCE0775	R, Carbon 1/4W 3.3kΩ ±5%	
R 76	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 77	RCE0753	R, Carbon 1/4W 47Ω ±5%	
C 61	CCC1014	C, Ceramic 50V 47pF ±5%	
C 67	CQA0097	C, Plastic 50V 0.01μF ±10%	
C 69	CCC1365	C, Ceramic 50V 680pF ±10%	
C 71	CCC1365	C, Ceramic 50V 680pF ±10%	
C 72	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 77	CCC0997	C, Ceramic 50V 3pF ±0.25pF	
RV 62	RNE0049	VR, Metal EVN39C00YB12 (100)	
RV 63	RNE0047	VR, Metal EVN39C00YB54 (50k)	
TR 61	HTC0168	Transistor 2SC535C	
TR 62	HTC0168	Transistor 2SC535C	
TR 63	HTA0224	Transistor 2SA1029D	
TR 64	HTA0224	Transistor 2SA1029D	
R 63A	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 64A	RCE0753	R, Carbon 1/4W 47Ω ±5%	

CH2 preamp & invert SW circuit

Symbol	Part Code	Description				Remarks
R 159	RCE0759	R, Carbon	1/4W	150Ω	±5%	
R 160	RCE0795	R, Carbon	1/4W	150kΩ	±5%	
R 161	RCE0745	R, Carbon	1/4W	10Ω	±5%	
R 162	RCE0753	R, Carbon	1/4W	47Ω	±5%	
R 163	RCE0773	R, Carbon	1/4W	2.2kΩ	±5%	
R 164	RCE0773	R, Carbon	1/4W	2.2kΩ	±5%	
R 165	RCE0781	R, Carbon	1/4W	10kΩ	±5%	
R 166	RCE0785	R, Carbon	1/4W	22kΩ	±5%	
R 167	RCE0758	R, Carbon	1/4W	120Ω	±5%	
R 168	RCE0749	R, Carbon	1/4W	22Ω	±5%	
R 169	RCE0767	R, Carbon	1/4W	680Ω	±5%	
R 170	RCE0767	R, Carbon	1/4W	680Ω	±5%	
R 171	RCE0749	R, Carbon	1/4W	22Ω	±5%	
R 172	RCE0753	R, Carbon	1/4W	47Ω	±5%	
R 173	RME1191	R, Metal	1/4W	432Ω	±1%	
R 174	RME1191	R, Metal	1/4W	432Ω	±1%	
R 175	RCE0775	R, Carbon	1/4W	3.3kΩ	±5%	
R 176	RCE0765	R, Carbon	1/4W	470Ω	±5%	
R 177	RCE0765	R, Carbon	1/4W	470Ω	±5%	
R 178	RCE0775	R, Carbon	1/4W	3.3kΩ	±5%	
R 179	RCE0753	R, Carbon	1/4W	47Ω	±5%	
C 167	CQA0097	C, Plastic	50V	0.01μF	±10%	
C 169	CCC1365	C, Ceramic	50V	680 pF	±10%	
C 171	CCC1365	C, Ceramic	50V	680 pF	±10%	
C 172	CCC1030	C, Ceramic	50V	10000 pF	+80 -20%	
C 179	CCC1030	C, Ceramic	50V	10000 pF	+80 -20%	
RV 161	RDE0003	VR, Carbon	EVH-YK3325B14			
RV 162	RNE0049	VR, Metal	EVN39C00YB12 (100)			
RV 163	RNE0047	VR, Metal	EVN39C00YB54 (50k)			
CV 161	CVE0049	C, Variable	ECR-HA040E11			
TR 161	HTC0168	Transistor	2SC535C			
TR 162	HTC0168	Transistor	2SC535C			
TR 163	HTA0224	Transistor	2SA1029D			
TR 164	HTA0224	Transistor	2SA1029D			
TR 165	HTA0224	Transistor	2SA1029D			
TR 166	HTA0224	Transistor	2SA1029D			

Diode gate & vertical amp

Symbol	Part Code	Description				Remarks
R 201	RCE0770	R, Carbon	1/4W	1.2kΩ	±5%	
R 202	RCE0770	R, Carbon	1/4W	1.2kΩ	±5%	
R 203	RME1063	R, Metal	1/4W	182Ω	±1%	
R 204	RME1063	R, Metal	1/4W	182Ω	±1%	
R 205	RCE0766	R, Carbon	1/4W	560Ω	±5%	
R 206	RCE0769	R, Carbon	1/4W	1kΩ	±5%	
R 207	RCE0782	R, Carbon	1/4W	12kΩ	±5%	
R 208	RME1064	R, Metal	1/4W	221Ω	±1%	
R 209	RME1064	R, Metal	1/4W	221Ω	±1%	
R 210	RCE0777	R, Carbon	1/4W	4.7kΩ	±5%	
R 211	RCE0768	R, Carbon	1/4W	820Ω	±5%	
R 212	RCE0768	R, Carbon	1/4W	820Ω	±5%	
R 213	RME1107	R, Metal	1/4W	86.6Ω	±1%	
R 214	RME1107	R, Metal	1/4W	86.6Ω	±1%	
R 215	RCE0772	R, Carbon	1/4W	1.8kΩ	±5%	
R 216	RCE0772	R, Carbon	1/4W	1.8kΩ	±5%	
R 217	RCE0761	R, Carbon	1/4W	220Ω	±5%	
C 201	CCC1030	C, Ceramic	50V	10000 pF	+80 -20%	
C 207	CCC1025	C, Ceramic	50V	100 pF	±10%	
C 210	CEX0563	C, Alelyc	16V	10μF	BP	
C 217	CCC1002	C, Ceramic	50V	10 pF	±0.5pF	
TR 201	HTC0338	Transistor	2SC1906TZ			
TR 202	HTC0338	Transistor	2SC1906TZ			
D 201	HDS0437	Diode	1SS133 T-77			
D 202	HDS0437	Diode	1SS133 T-77			
D 203	HDS0437	Diode	1SS133 T-77			
D 204	HDS0437	Diode	1SS133 T-77			
D 205	HDS0437	Diode	1SS133 T-77			
D 206	HDS0437	Diode	1SS113 T-77			
D 207	HDS0437	Diode	1SS133 T-77			
D 208	HDS0437	Diode	1SS133 T-77			

Vertical switching multi

Symbol	Part Code	Description				Remarks
R 221	RCE0748	R, Carbon	1/4W	18Ω	±5%	
R 222	RCE0758	R, Carbon	1/4W	120Ω	±5%	
R 223	RCE0748	R, Carbon	1/4W	18Ω	±5%	
R 224	RCE0758	R, Carbon	1/4W	120Ω	±5%	
R 225	RCE0789	R, Carbon	1/4W	47kΩ	±5%	
R 226	RCE0749	R, Carbon	1/4W	22Ω	±5%	
R 228	RCE0789	R, Carbon	1/4W	47kΩ	±5%	
R 229	RCE0776	R, Carbon	1/4W	3.9kΩ	±5%	
R 230	RCE0777	R, Carbon	1/4W	4.7kΩ	±5%	
R 231	RCE0777	R, Carbon	1/4W	4.7kΩ	±5%	
R 232	RCE0770	R, Carbon	1/4W	1.2kΩ	±5%	
R 233	RCE0781	R, Carbon	1/4W	10kΩ	±5%	
R 234	RCE0781	R, Carbon	1/4W	10kΩ	±5%	
R 235	RCE0789	R, Carbon	1/4W	47kΩ	±5%	
R 236	RCE0789	R, Carbon	1/4W	47kΩ	±5%	
R 237	RCE0789	R, Carbon	1/4W	47kΩ	±5%	

Symbol	Part Code	Description	Remarks
R 238	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 239	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
C 221	CCC1160	C, Ceramic 50V 330 pF ±10%	
C 222	CES0028	C, Alelyc 10V 47μF ±20%	
C 223	CCC1160	C, Ceramic 50V 330 pF ±10%	
C 224	CES0028	C, Alelyc 10V 47μF ±20%	
TR 232	HTA0224	Transistor 2SA1029D TZ	
IC 222	IDH0467	IC HD74LS00P	
IC 226	IDH0586	IC HD74LS74AP	
D 221	HDS0437	Diode 1SS133 T-77	
D 222	HDS0437	Diode 1SS133 T-77	
D 224	HDS0437	Diode 1SS133 T-77	
D 225	HDS0437	Diode 1SS133 T-77	
D 226	HDS0437	Diode 1SS133 T-77	
D 230	HDS0437	Diode 1SS133 T-77	
D 231	HDS0437	Diode 1SS133 T-77	
S 201	3165210	SW, Rotary SBU 1025	

CH1 trig pickoff & CH1 out

Symbol	Part Code	Description	Remarks
R 81	RCE0693	R, Carbon 1/2W 100Ω ±5%	
R 82	RME1107	R, Metal 1/4W 86.6Ω ±1%	
R 83	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 84	RCE0759	R, Carbon 1/4W 150Ω ±5%	
R 85	RCE0783	R, Carbon 1/4W 15kΩ ±5%	
R 86	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 87	RCE0751	R, Carbon 1/4W 33Ω ±5%	
R 88	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 89	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 90	RCE0745	R, Carbon 1/4W 10Ω ±5%	
R 91	RCE0761	R, Carbon 1/4W 220Ω ±5%	
R 93	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 94	RME1070	R, Metal 1/4W 681Ω ±5%	
R 95	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 96	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 97	RCE0781	R, Carbon 1/4W 10kΩ ±5%	
R 98	RCE0767	R, Carbon 1/4W 680Ω ±5%	
R 99	RCE0767	R, Carbon 1/4W 680Ω ±5%	
C 83	CES0028	C, Alelyc 10V 47μF/LB	
C 86	CCC1034	C, Ceramic 50V 68 pF ±5%	
C 90	CCC1365	C, Ceramic 50V 680 pF ±10%	
C 91	CCC1365	C, Ceramic 50V 680 pF ±10%	
C 94	CES0028	C, Alelyc 10V 47μF/LB	
C 96	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 97	CCC1007	C, Ceramic 50V 22 pF ±5%	

Symbol	Part Code	Description	Remarks
RV 85	RNE0051	VR, Metal EVN39C00YB14 (10K)	
TR 85	HTC0168	Transistor 2SC535C	
TR 86	HTC0168	Transistor 2SC535C	
TR 87	HTC0148	Transistor 2SC458C	
D 97	HDH0024	Diode HZ3B	
L 98	TLF0067	Coil FL-5H101K	

CH2 trig pickoff

Symbol	Part Code	Description	Remarks
R 181	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 184	RCE0759	R, Carbon 1/4W 150Ω ±5%	
R 185	RCE0783	R, Carbon 1/4W 15kΩ ±5%	
R 186	RCE0753	R, Carbon 1/4W 100Ω ±5%	
R 187	RCE0751	R, Carbon 1/4W 33Ω ±5%	
R 188	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 189	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 190	RCE0745	R, Carbon 1/4W 10Ω ±5%	
R 191	RCE0775	R, Carbon 1/4W 3.3kΩ ±5%	
R 192	RCE0770	R, Carbon 1/4W 1.2kΩ ±5%	
RV 185	RNE0051	VR, Metal EVN39C00YB14 (10K)	
C 186	CCC1034	C, Ceramic 50V 68 pF ±5%	
C 190	CCC1365	C, Ceramic 50V 680 pF ±10%	
TR 185	HTC0168	Transistor 2SC535C	
TR 186	HTC0168	Transistor 2SC535C	

Trig preamp

Symbol	Part Code	Description	Remarks
R 241	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 242	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 243	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 244	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 245	RME1117	R, Metal 1/4W 750Ω ±1%	
R 246	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 247	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 248	RCE0753	R, Carbon 1/4W 47Ω ±5%	

Symbol	Part Code	Description			Remarks
R 249	RCE0769	R, Carbon	1/4W	1kΩ ±5%	
R 250	RCE0762	R, Carbon	1/4W	270Ω ±5%	
C 241	CCC1030	C, Ceramic	50V	10000 pF ±10%	
C 242	CES0028	C, Alelyc	10V	47μF ±20%	
C 243	CCC1007	C, Ceramic	50V	22 pF ±5%	
C 244	CCC1007	C, Ceramic	50V	22 pF ±5%	
C 245	CQA0097	C, Plastic	50V	0.01μF ±10%	
C 246	CCC1025	C, Ceramic	50V	100 pF ±5%	
C 249	CCC0999	C, Ceramic	50V	5 pF ±0.25pF	
C 270	CES0028	C, Alelyc	10V	47μF ±20%	
D 243	HDS0437	Diode	1SS133		
D 244	HDS0437	Diode	1SS133		
TR 241	HTC0192	Transistor	2SC641K		
TR 242	HTC0192	Transistor	2SC641K		
TR 246	HTA0099	Transistor	2SA781K		

Square wave cal 1 kHz

Symbol	Part Code	Description			Remarks
R 1201	RME1174	R, Metal	1/4W	2.00kΩ ±1%	
R 1202	RME1065	R, Metal	1/4W	267Ω ±1%	
R 1203	RCE0783	R, Carbon	1/4W	15kΩ ±5%	
R 1204	RCE0781	R, Carbon	1/4W	10kΩ ±5%	
R 1205	RCE0783	R, Carbon	1/4W	15kΩ ±5%	
R 1206	RCE0789	R, Carbon	1/4W	47kΩ ±5%	
R 1207	RCE0781	R, Carbon	1/4W	10kΩ ±5%	
R 1208	RCE0787	R, Carbon	1/4W	33kΩ ±5%	
R 1209	RCE0781	R, Carbon	1/4W	10kΩ ±5%	
R 1210	RCE0745	R, Carbon	1/4W	10Ω ±5%	
C 1201	CCC1002	C, Ceramic	50V	10 pF ±0.5pF	
C 1202	CQA0091	C, Plastic	50V	0.001μF ±10%	
C 1208	CQA0099	C, Plastic	50V	0.022μF ±10%	
C 1210	CES0028	C, Alelyc	10V	47μF ±20%	
RV 1201	RNE0058	VR, Metal	EVN39C00YB13 (1K)		
TR 1201	HTA0224	Transistor	2SA1029D		
TR 1208	HTC0148	Transistor	2SC458C		
TR 1209	HTC0148	Transistor	2SC458C		

Panel & others

Symbol	Part Code	Description		Remarks
J 80	JHB0088	CON, Coax	BNC071	
J 1201	8397022	Test Point	Z069	

3 V OUT AMP

Symbol	Part Code	Description			Remarks
R 331	RME1060	R, Metal	1/4W	100Ω ±1%	
R 332	RME1060	R, Metal	1/4W	100Ω ±1%	
R 333	RCE0777	R, Carbon	1/4W	4.7kΩ ±5%	
R 336	RCE0758	R, Carbon	1/4W	120Ω ±5%	
R 337	RCE0745	R, Carbon	1/4W	10Ω ±5%	
R 338	RCE0775	R, Carbon	1/4W	3.3kΩ ±5%	
R 339	RCE0765	R, Carbon	1/4W	470Ω ±5%	
R 340	RCE0765	R, Carbon	1/4W	470Ω ±5%	
R 341	RCE0745	R, Carbon	1/4W	10Ω ±5%	
R 345	RCE0753	R, Carbon	1/4W	47Ω ±5%	
R 346	RCE0753	R, Carbon	1/4W	47Ω ±5%	
R 347	RCE0759	R, Carbon	1/4W	150Ω ±5%	
R 348	RCE0759	R, Carbon	1/4W	150Ω ±5%	
R 349	RCE0759	R, Carbon	1/4W	150Ω ±5%	
R 350	RCE0759	R, Carbon	1/4W	150Ω ±5%	
R 355	RCE0758	R, Carbon	1/4W	120Ω ±5%	
R 356	RCE0757	R, Carbon	1/4W	100Ω ±5%	
R 360	RCE0766	R, Carbon	1/4W	560Ω ±5%	
R 361	RCE0766	R, Carbon	1/4W	560Ω ±5%	
R 362	RCE0781	R, Carbon	1/4W	10kΩ ±5%	
R 363	RME1066	R, Metal	1/4W	332Ω ±1%	
R 364	RME1066	R, Metal	1/4W	332Ω ±1%	
R 365	RCE0769	R, Carbon	1/4W	1kΩ ±5%	
R 366	RCE0769	R, Carbon	1/4W	1kΩ ±5%	
R 367	RMR3778	R, Metal	1W	6.8kΩ ±5%	
R 368	RMR3778	R, Metal	1W	6.8kΩ ±5%	
R 369	RCE0749	R, Carbon	1/4W	22Ω ±5%	
R 371	RCE0751	R, Carbon	1/4W	33Ω ±5%	
R 372	RCE0751	R, Carbon	1/4W	33Ω ±5%	
R 373	RCE0749	R, Carbon	1/4W	22Ω ±5%	
R 374	RCE0749	R, Carbon	1/4W	22Ω ±5%	
R 375	RCE0751	R, Carbon	1/4W	33Ω ±5%	
R 376	RCE0751	R, Carbon	1/4W	33Ω ±5%	
R 377	RCE0769	R, Carbon	1/4W	1kΩ ±5%	
R 378	RCE0769	R, Carbon	1/4W	1kΩ ±5%	
R 381	RCE0711	R, Carbon	1/4W	3.3kΩ ±5%	
R 382	RCE0711	R, Carbon	1/4W	3.3kΩ ±5%	
R 383	RCE0749	R, Carbon	1/4W	22Ω ±5%	
R 384	RCE0749	R, Carbon	1/4W	22Ω ±5%	
R 385	RCE0757	R, Carbon	1/4W	100Ω ±5%	
R 386	RCE0757	R, Carbon	1/4W	100Ω ±5%	
R 387	RCE0711	R, Carbon	1/4W	3.3kΩ ±5%	
R 388	RCE0711	R, Carbon	1/4W	3.3kΩ ±5%	
R 389	RCE0721	R, Carbon	1/4W	22kΩ ±5%	
R 390	RME1073	R, Metal	1/4W	1.21kΩ ±5%	
R 391	RME1068	R, Metal	1/4W	475Ω ±5%	
R 392	RME1071	R, Metal	1/4W	825Ω ±5%	
R 398	RCE0414	R, Carbon	1/4W	120Ω ±5%	
R 399	RCE0414	R, Carbon	1/4W	120Ω ±5%	
C 270	CES0028	C, Alelyc	10V	47μF ±20%	
C 271	CES0028	C, Alelyc	10V	47μF ±20%	
C 355	CCC1002	C, Ceramic	50V	10 pF ±0.5pF	
C 365	CCC1007	C, Ceramic	50V	22 pF ±5%	
C 366	CCC1002	C, Ceramic	50V	10 pF ±0.5pF	
C 367	CCD0273	C, Ceramic	500V	2 pF ±0.25pF	
C 368	CCD0273	C, Ceramic	500V	2 pF ±0.25pF	
C 379	CCD0217	C, Ceramic	500V	1000 pF ±10%	
C 380	CCD0217	C, Ceramic	500V	1000 pF ±10%	
C 385	CCC0591	C, Ceramic	500V	10000 pF +100% -0	
C 386	CCC0591	C, Ceramic	500V	10000 pF +100% -0	

4 TRIG GEN

Symbol	Part Code	Description			Remarks
C 389	CCD0287	C, Ceramic	500V	4700 pF +100 −0 %	
C 301	CET0033	C, Alelyc	160V	1 µF ±20%	
C 302	CES0028	C, Alelyc	10V	47 µF ±20%	
C 303	CES0028	C, Alelyc	10V	47 µF ±20%	
C 304	CES0028	C, Alelyc	10V	47 µF ±20%	
C 305	CES0028	C, Alelyc	10V	47 µF ±20%	
C 337	CCC1005	C, Ceramic	50V	18 pF ±5%	
C 338	CCC1011	C, Ceramic	50V	33 pF ±5%	
C 345	CCC1029	C, Ceramic	50V	1000 pF +80% −20	
C 346	CCC1029	C, Ceramic	50V	1000 pF +80 −20%	
C 364	CES0028	C, Alelyc	10V	47 µF ±20%	
TR 331	HTA0099	Transistor	2SA781K		
TR 332	HTA0099	Transistor	2SA781K		
TR 349	HTC0721	Transistor	2SC2901		
TR 350	HTC0721	Transistor	2SC2901		
TR 365	HTC0721	Transistor	2SC2901		
TR 366	HTC0721	Transistor	2SC2901		
TR 376	HTA0258	Transistor	2SA1210S		
TR 377	HTA0099	Transistor	2SA781K		
TR 378	HTA0099	Transistor	2SA781K		
TR 371	HTC0669	Transistor	2SC2912S		
TR 372	HTC0669	Transistor	2SC2912S		
TR 375	HTA0258	Transistor	2SA1210S		
TR 390	HTA0099	Transistor	2SA781K		
L 385	TLE0109	Coil	ELE-V R68 MA		
L 386	TLE0109	Coil	ELE-V R68 MA		
RV 339	RNE0048	VR, Metal	EVN39C00YB22 (200)		
P 301	JBB0022	Connector	B6B-XH-A		
P 302	JBB0021	Connector	B3B-XH-A		
CV 337	CVE0047	C, Variable	ECR-HA020D11		
CV 355	CVE0049	C, Variable	ECR-HA040E11		
CV 366	CVE0047	C, Variable	ECR-HA020D11		
D 374	HDH0029	Diode	HZ5B		
D 375	HDH0029	Diode	HZ5B		
D 377	HDH0029	Diode	HZ5B		

Symbol	Part Code	Description			Remarks
R 401	RCE0800	R, Carbon	1/4W	470kΩ ±5%	
R 402	RCE0755	R, Carbon	1/4W	68Ω ±5%	
R 404	RCE0764	R, Carbon	1/4W	390Ω ±5%	
R 406	RCE0800	R, Carbon	1/4W	470kΩ ±5%	
R 407	RCE0761	R, Carbon	1/4W	220Ω ±5%	
R 408	RCE0757	R, Carbon	1/4W	100Ω ±5%	
R 409	RCE0779	R, Carbon	1/4W	6.8kΩ ±5%	
R 410	RCE0772	R, Carbon	1/4W	1.8kΩ ±5%	
R 417	RCE0769	R, Carbon	1/4W	1kΩ ±5%	
R 418	RCE0779	R, Carbon	1/4W	6.8kΩ ±5%	
R 420	RCE0781	R, Carbon	1/4W	10kΩ ±5%	
R 425	RCE0745	R, Carbon	1/4W	10Ω ±5%	
R 430	RCE0757	R, Carbon	1/4W	100Ω ±5%	
R 432	RCE0767	R, Carbon	1/4W	680Ω ±5%	
R 433	RCE0768	R, Carbon	1/4W	820Ω ±5%	
R 434	RCE0689	R, Carbon	1/4W	47Ω ±5%	
R 435	RCE0774	R, Carbon	1/4W	2.7kΩ ±5%	
R 436	RCE0775	R, Carbon	1/4W	3.3kΩ ±5%	
R 437	RCE0775	R, Carbon	1/4W	3.3kΩ ±5%	
R 438	RCE0789	R, Carbon	1/4W	47kΩ ±5%	
R 439	RCE0789	R, Carbon	1/4W	47kΩ ±5%	
R 441	RCE0769	R, Carbon	1/4W	1kΩ ±5%	
R 443	RCE0789	R, Carbon	1/4W	47kΩ ±5%	
R 444	RCE0771	R, Carbon	1/4W	1.5kΩ ±5%	
R 445	RCE0777	R, Carbon	1/4W	4.7kΩ ±5%	
R 450	RCE0777	R, Carbon	1/4W	4.7kΩ ±5%	
R 452	RCE0785	R, Carbon	1/4W	22kΩ ±5%	
R 460	RCE0749	R, Carbon	1/4W	22Ω ±5%	
R 472	RCE0775	R, Carbon	1/4W	3.3kΩ ±5%	
C 402	CCD0279	C, Ceramic	500V	220 pF ±5%	
C 403	CQX0068	C, Plastic	50V	0.047 µF ±20%	
C 404	CCC1029	C, Ceramic	50V	1000 pF +80% −20	
C 407	CCC0999	C, Ceramic	50V	5 pF ±0.25pF	
C 408	CES0028	C, AL Elyc	10V	47 µF ±20%	
C 417	CEC0176	C, AL Elyc(BP)	25V	10 µF ±20%	
C 418	CCC1030	C, Ceramic	50V	10000 pF +80 −20%	
C 425	CES0028	C, AL Elyc	10V	47 µF ±20%	
C 442	CEX0230	C, AL Elyc	50V	1BP ±0.5pF	
C 444	CES0028	C, AL Elyc	10V	47 µF ±20%	
C 452	CQA0097	C, Plastic	50V	10000 pF ±10%	
C 460	CES0028	C, AL Elyc	10V	47 µF ±20%	
C 470	CCC1163	C, Ceramic	50V	680 pF ±10%	
RV 418	RDE0003	VR, Carbon	EVH-YK3325B14		
RV 420	RNE0051	VR, Metal	EVN39C00YB14 (10K)		
TR 401	HTK0099	Transistor	2SK404E-SPA-AC		
TR 402	HTC0148	Transistor	2SC458C TZ		
TR 431	HTC0168	Transistor	2SC535C TZ		
TR 432	HTC0168	Transistor	2SC535C TZ		
TR 441	HTA0224	Transistor	2SA1029D TZ		
TR 470	HTC0148	Transistor	2SC458C TZ		
L 432	TLE0120	Coil	ELE-V6R8KA		
IC 401	IDH0403	Digital IC	HD74S00P		
S 401	8374067D	SW Lever	SLR024		
S 403	8374067D	SW Lever	SLR024		
D 401	HDS0437	Diode	1SS133 T-77		
D 444	HDS0437	Diode	1SS133 T-77		

Panel & others

Symbol	Part Code	Description	Remarks
J 403	JHB0088	CON. Coax BNC071	

⟨5⟩ SWEEP GEN

Symbol	Part Code	Description	Remarks
R 501	RCE0745	R, Carbon 1/4W 10Ω ±5%	
R 502	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 503	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 504	RCE0789	R, Carbon 1/4W 47kΩ ±5%	
R 505	RCE0775	R, Carbon 1/4W 3.3kΩ ±5%	
R 506	RCE0789	R, Carbon 1/4W 47kΩ ±5%	
R 507	RCE0781	R, Carbon 1/4W 10kΩ ±5%	
R 508	RCE0745	R, Carbon 1/4W 10Ω ±5%	
R 509	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 510	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 513	RCE0780	R, Carbon 1/4W 8.2kΩ ±5%	
R 514	RCE0771	R, Carbon 1/4W 1.5kΩ ±5%	
R 515	RCE0783	R, Carbon 1/4W 15kΩ ±5%	
R 519	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 520	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 521	RCE0789	R, Carbon 1/4W 47kΩ ±5%	
R 522	RCE0761	R, Carbon 1/4W 220Ω ±5%	
R 523	RCE0775	R, Carbon 1/4W 3.3kΩ ±5%	
R 524	RCE0789	R, Carbon 1/4W 47kΩ ±5%	
R 525	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 526	RCE0779	R, Carbon 1/4W 6.8kΩ ±5%	
R 529	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 530	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 531	RME1174	R, Metal 1/4W 2.00kΩ ±1%	
R 532	RCE0775	R, Metal 1/4W 3.32kΩ ±1%	
R 533	RCE0775	R, Carbon 1/4W 3.3kΩ ±5%	
R 534	RCE0785	R, Carbon 1/4W 22kΩ ±5%	
R 535	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 536	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
C 501	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 505	CCC1133	C, Ceramic 50V 1 pF ±0.25pF	
C 507	CES0028	C, AL Elyc 10V 47μF ±20%	
C 510	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 511	CES0036	C, AL Elyc 25V 22μF ±20%	
C 519	CES0028	C, AL Elyc 10V 47μF ±20%	
C 520	CCC1032	C, Ceramic 50V 82 pF ±5%	
C 524	CCC1001	C, Ceramic 50V 8 pF ±0.5pF	
C 525	CQE0049	C, Plastic ECQ-E1105JN(JNB) Type	
C 526	CQE0050	C, Plastic ECQ-P1103JN 100V 0.1μF ±0.5%	
C 527	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 528	CES0028	C, AL Elyc 10V 47μF ±20%	
C 530	CCC1025	C, Ceramic 50V 100 pF ±10%	
CV 520	CVE0049	C, Variable ECR-HA040E11	
TR 503	HTA0224	Transistor 2SA1029D TZ	
TR 514	HTC0048	Transistor 2SC458C TZ	
TR 520	HTK0081	Transistor 2SK304E-SPA-AC	
TR 521	HTC0148	Transistor 2SC458C TZ	
TR 522	HTC0148	Transistor 2SC458C TZ	
TR 532	HTC0148	Transistor 2SC458C TZ	
IC 501	IDH0429	Digital, IC HD74S74P	
IC 502	IDH0469	Digital, IC HD74LS03P	
D 501	HDS0437	Diode 1SS133 T-77	
D 520	HDM0051	Diode MA161 TA5	
D 521	HDM0051	Diode MA161 TA5	
D 522	HDM0051	Diode MA161 TA5	
D 530	HDS0437	Diode 1SS133 T-77	

Symbol	Part Code	Description	Remarks
D 535	HDM0051	Diode MA161 TA5	
D 536	HDS0437	Diode 1SS133 T-77	
R 527	RSE0434	R, Solid 1/4W 10MΩ ±5%	
R 528	RCE0736	R, Carbon 1/2W 1.5MΩ ±5%	
RM 520	3173847B	R, Module For TIME	
S 501	8404097	Rotary S21P2YL	

Horizontal display circuit

Symbol	Part Code	Description	Remarks
R 540	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 541	RCE0764	R, Carbon 1/4W 390Ω ±5%	
R 542	RCE0770	R, Carbon 1/4W 1.2kΩ ±5%	
R 543	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 544	RCE0783	R, Carbon 1/4W 15kΩ ±5%	
R 545	RCE0780	R, Carbon 1/4W 8.2kΩ ±5%	
R 546	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 547	RCE0775	R, Carbon 1/4W 3.3kΩ ±5%	
R 548	RCE0778	R, Carbon 1/4W 5.6kΩ ±5%	
R 549	RCE0781	R, Carbon 1/4W 10kΩ ±5%	
R 550	RCE0778	R, Carbon 1/4W 5.6kΩ ±5%	
R 551	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 552	RCE0775	R, Carbon 1/4W 3.3kΩ ±5%	
R 553	RCE0781	R, Carbon 1/4W 10kΩ ±5%	
R 554	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 555	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 556	RCE0767	R, Carbon 1/4W 680Ω ±5%	
C 544	CQA0099	C, Plastic 50V 0.022μF ±10%	
C 545	CET0031	C, AL Elyc(BP)50V 1μF	
C 550	CCC1014	C, Ceramic 50V 47pF ±5%	
C 551	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 552	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 553	CES0028	C, AL Elyc 10V 47μF ±20%	
C 554	CES0028	C, AL Elyc 10V 47μF ±20%	
RV 523	RNE0070	RV, Metal 39C00YB53(5K)	
RV 540	8397021	RV, Carbon V16L5(7x6.5)20KC-B2k	
RV 542	RNE0052	RV, Metal 39C00YB23 (2K)	
RV 550	RNE0058	RV, Metal 39C00YB13 (1K)	
TR 544	HTC0148	Transistor 2SC458C TZ	
TR 545	HTC0148	Transistor 2SC458C TZ	
IC 550	IDH0802	Digital IC HD14053BP	
D 541	HDS0437	Diode 1SS133 T-77	
D 543	HDS0407	Diode SR503D with mount(red)	

Chop pulse generator

Symbol	Part Code	Description	Remarks
R 571	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 572	RCE0776	R, Carbon 1/4W 3.9kΩ ±5%	
R 573	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 574	RCE0783	R, Carbon 1/4W 15kΩ ±5%	
R 576	RCE0745	R, Carbon 1/4W 10Ω ±5%	
R 578	RCE0776	R, Carbon 1/4W 3.9kΩ ±5%	
R 581	RCE0757	R, Carbon 1/4W 100Ω ±5%	
C 571	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 572	CCC1025	C, Ceramic 50V 100pF ±10%	
C 573	CCC1027	C, Ceramic 50V 220pF ±10%	
C 576	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 577	CES0028	C, AL Elyc 10V 47μF ±20%	
IC 571	IDH0646	Digital, IC HD74LS02P	
L 581	TLF0058	Coil FL-3H 2R2M	
D 571	HDS0437	Diode 1SS133 T-77	
D 572	HDS0437	Diode 1SS133 T-77	
D 573	HDS0437	Diode 1SS133 T-77	
D 574	HDS0437	Diode 1SS133 T-77	

Symbol	Part Code	Description	Remarks
R 801	RCE0779	R, Carbon 1/4W 6.8kΩ ±5%	
R 802	RCE0761	R, Carbon 1/4W 220Ω ±5%	
R 804	RCE0781	R, Carbon 1/4W 10kΩ ±5%	
R 805	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 806	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 807	RCE0761	R, Carbon 1/4W 220Ω ±5%	
R 808	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 811	RME1076	R, Metal 1/4W 2.21kΩ ±1%	
R 812	RME1076	R, Metal 1/4W 2.21kΩ ±1%	
R 813	RCE0770	R, Carbon 1/4W 1.2kΩ ±5%	
R 814	RCE0770	R, Carbon 1/4W 1.2kΩ ±5%	
R 821	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 822	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 823	RCE0745	R, Carbon 1/4W 10Ω ±5%	
R 824	RCE0774	R, Carbon 1/4W 2.7kΩ ±5%	
R 831	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 832	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 833	RME1073	R, Metal 1/4W 1.21kΩ ±1%	
R 834	RME1073	R, Metal 1/4W 1.21kΩ ±1%	
R 840	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 841	RME1074	R, Metal 1/4W 1.50kΩ ±1%	
R 842	RME1074	R, Metal 1/4W 1.50kΩ ±1%	
R 843	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 844	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 845	RMR3726	R, Carbon 1W 22kΩ ±1%	
R 846	RMR3726	R, Carbon 1W 22kΩ ±1%	
R 847	RCE0755	R, Carbon 1/4W 68Ω ±5%	
R 851	RCE0714	R, Carbon 1/2W 5.6kΩ ±5%	
R 852	RCE0714	R, Carbon 1/2W 5.6kΩ ±5%	
R 853	RCE0714	R, Carbon 1/2W 5.6kΩ ±5%	
R 854	RCE0714	R, Carbon 1/2W 5.6kΩ ±5%	
R 855	RCE0714	R, Carbon 1/2W 5.6kΩ ±5%	
R 856	RCE0714	R, Carbon 1/2W 5.6kΩ ±5%	
R 857	RCE0763	R, Carbon 1/4W 330Ω ±1%	
R 858	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 859	RZZ0031	R, Fusing PF-25S 220Ω	
D 851	HDS0437	Diode 1SS133 T-77	
D 852	HDS0437	Diode 1SS133 T-77	
D 853	HDS0437	Diode 1SS133 T-77	
D 854	HDS0437	Diode 1SS133 T-77	
R 860	RCE0775	R, Carbon 1/4W 3.3kΩ ±5%	
R 866	RME1085	R, Metal 1/4W 12.1kΩ ±1%	
R 871	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 872	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 873	RCE0761	R, Carbon 1/4W 220Ω ±5%	
R 874	RCE0761	R, Carbon 1/4W 220Ω ±5%	
R 880	RCE0761	R, Carbon 1/4W 220Ω ±5%	
R 881	RCE0761	R, Carbon 1/4W 220Ω ±5%	
R 890	RCE0783	R, Carbon 1/4W 15kΩ ±5%	
R 1880-81	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 1882	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
C 801	CES0028	C, AL Elyc 10V 47μF ±20%	
C 805	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 806	CES0028	C, AL Elyc 10V 47μF ±20%	
C 808	CES0028	C, AL Elyc 10V 47μF ±20%	
C 811	CCC0996	C, Ceramic 50V 2 pF ±0.25pF	
C 812	CCC0996	C, Ceramic 50V 2 pF ±0.25pF	
C 845	CCD0274	C, Ceramic 500V 3 pF ±0.25pF	
C 846	CCD0274	C, Ceramic 500V 3 pF ±0.25pF	

Symbol	Part Code	Description	Remarks
C 847	CCC1007	C, Ceramic 50V 22 pF ±5%	
C 848	CCC1007	C, Ceramic 50V 22 pF ±5%	
C 857	CCD0287	C, Ceramic 500V 4700 pF +100 − 0%	
C 873	CCC1025	C, Ceramic 50V 100 pF ±10%	
C 874	CCC1025	C, Ceramic 50V 100 pF ±10%	
C 823	CCC1004	C, Ceramic 50V 15 pF ±5%	
C 880	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
RV 805	RDE0003	VR, Carbon EVH-YK3325B14	
RV 821	RNE0050	VR, Metal EVN39C00YB52 (500)	
RV 824	RNE0053	VR, Metal EVN39C00YB24 (20K)	
RV 831	RNE0048	VR, Metal EVN39C00YB22 (200)	
RV 890	RNE0051	VR, Metal EVN39C00YB14 (10K)	
CV 840	CVE0046	C, Variable ECR-HA010A11	
TR 811	HTC0148	Transistor 2SC458C TZ	
TR 812	HTC0148	Transistor 2SC458C TZ	
TR 821	HTA0224	Transistor 2SA1029D TZ	
TR 822	HTA0224	Transistor 2SA1029D TZ	
TR 831	HTA0224	Transistor 2SA1029D TZ	
TR 832	HTA0224	Transistor 2SA1029D TZ	
TR 843	HTA0224	Transistor 2SA1029D TZ	
TR 844	HTA0224	Transistor 2SA1029D TZ	
TR 851	HTC0722	Transistor 2SC2909S AA	
TR 852	HTC0722	Transistor 2SC2909S AA	
TR 853	HTC0722	Transistor 2SC2909S AA	
TR 854	HTC0722	Transistor 2SC2909S AA	
TR 1880	HTC0148	Transistor 2SC458C TZ	
L 852	TLE0138	Coil ELE-Y 681KA	

7 HV & Z AMP

High voltage circuit

Symbol	Part Code	Description	Remarks
R 1001	RMS0018	R, Metal 1/4W 1MΩ ±1%	
R 1002	RCE0781	R, Carbon 1/4W 10kΩ ±5%	
R 1003	RCE0797	R, Carbon 1/4W 220kΩ ±5%	
R 1004	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 1005	RCE0775	R, Carbon 1/4W 3.3kΩ ±5%	
R 1006	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 1012	RCE0789	R, Carbon 1/4W 47kΩ ±5%	
R 1014	RCE0715	R, Carbon 1/2W 6.8kΩ ±5%	
R 1017	RMV0004	R, Metal 1/2W 22.1MΩ ±1%	
R 1016	RCE0745	R, Carbon 1/4W 10Ω ±5%	
R 1020	RCE0798	R, Carbon 1/4W 330kΩ ±5%	
R 1021	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 1023	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 1024	RSE0434	R, Solid 1/2W 10MΩ ±5%	
R 1033	RCE0781	R, Carbon 1/4W 10kΩ ±5%	
R 1034	RCE0785	R, Carbon 1/4W 22kΩ ±5%	
R 1038	RCE0793	R, Carbon 1/4W 100kΩ ±5%	
R 1350	RCE0749	R, Carbon 1/4W 22Ω ±5%	
C 1001	CQA0099	C, Plastic 50V 0.022μF ±10%	
C 1002	CES0035	C, AL Elyc 50V 47μF ±20%	
C 1005	CQA0101	C, Plastic 50V 0.047μF ±10%	
C 1012	CCD0231	C, Ceramic 2000V 4700pF +80 -20%	
C 1013	CCD0231	C, Ceramic 2000V 4700pF +80 -20%	
C 1014	CCD0231	C, Ceramic 2000V 4700pF +80 -20%	
C 1016	CCD0245	C, Ceramic 2000V 100pF ±10%	
C 1020	CCD0286	C, Ceramic 500V 1000pF +100 -0%	
C 1021	CET0033	C, AL Elyc 160V 1μF ±20%	
C 1023	CCD0246	C, Ceramic 2kV 1000pF ±10%	
C 1025	CCD0231	C, Ceramic 2000V 4700pF +80 -20%	
C 1034	CCD0287	C, Ceramic 500V 4700pF +100 -0%	
C 1035	CCD0287	C, Ceramic 500V 4700pF +100 -0%	
C 1038	CCD0287	C, Ceramic 500V 4700pF +100 -0%	
RV 1021	RNE0054	RV, Metal EVN39C00YB15 (100K)	
RV 1033	RNE0054	RV, Metal EVN39C00YB15 (100K)	
RV 1035	RNE0054	RV, Metal EVN39C00YB15 (100K)	
RV 1348	8348450H	RV, Metal CR29R 22kΩ	
TR 1001	HTK0081	Transistor 2SK304E-SPA-AC	
TR 1002	HTA0224	Transistor 2SA1029D TZ	
TR 1006	HTD0155	Transistor 2SD313E	
TR 1348	HTC0148	Transistor 2SC458C TZ	
TR 1349	HTA0224	Transistor 2SA1029D TZ	
D 1013	HDY0031	Diode Y10GA	
D 1020	HDH0072	Diode HZ22 T-D	
D 1021	HDS0250	Diode 1SS83 TD	
D 1022	HDS0250	Diode 1SS83 TD	
D 1023	HDS0250	Diode 1SS83 TD	
D 1024	HDS0250	Diode 1SS83 TD	
D 1038	HDH0072	Diode HZ22 T-D	
T 1001	3180008	XFMR For V-211,212,222,422	
MUT1001	3180009	Multiplier 10KV X5	
NL 1024	ELL0019	Lamps NE-2	
NL 1025	ELL0019	Lamps NE-2	
F 1001	EFL0147	Fuse TSCR UL 125V 0.5A	

Panel & others

Symbol	Part Code	Description	Remarks
V 1001	DPX0077	CRT 2977B31	
	8338351	Terminal Z-048	
J 9	JHB0088	CON. Coax BNC071	
L 1350		Coil Trace Rotation	

Z axis amp

Symbol	Part Code	Description	Remarks
R 901	RCE0787	R, Carbon 1/4W 33kΩ ±5%	
R 902	RCE0776	R, Carbon 1/4W 3.9kΩ ±5%	
R 903	RCE0784	R, Carbon 1/4W 18kΩ ±5%	
R 904	RCE0723	R, Carbon 1/2W 33kΩ ±5%	
R 906	RCE0793	R, Carbon 1/4W 100kΩ ±5%	
R 907	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 908	RCE0771	R, Carbon 1/4W 1.5kΩ ±5%	
R 909	RCE0797	R, Carbon 1/4W 220kΩ ±5%	
R 910	RCE0783	R, Carbon 1/4W 15kΩ ±5%	
R 911	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 912	RCE0745	R, Carbon 1/4W 10Ω ±5%	
R 915	RCE0761	R, Carbon 1/4W 220Ω ±5%	
R 930	RCE0776	R, Carbon 1/4W 3.9kΩ ±5%	
R 931	RCE0787	R, Carbon 1/4W 33kΩ ±5%	
R 905	RCE0795	R, Carbon 1/4W 150kΩ ±5%	
C 901	CES0028	C, AL Elyc 10V 47μF ±20%	
C 904	CCD0272	C, Ceramic 500V 1pF ±0.25pF	
C 908	CCD0287	C, Ceramic 500V 4700pF +100 -0%	
C 912	CET0033	TC 04SM 160V 1μF ±20%	
TR 901	HTC0192	Transistor 2SC641K-C TZ	
TR 906	HTC0148	Transistor 2SC458C TZ	
TR 910	HTA0277	Transistor 2SA1207S AA	
TR 912	HTC0722	Transistor 2SC2909S AA	
TR 931	HTA0104	Transistor 2SA778AK TZ	
D 901	HDS0437	Diode 1SS133 T-77	
D 902	HDS0437	Diode 1SS133 T-77	

CRT

Symbol	Part Code	Description	Remarks
R 1018	RCE0738	R, Carbon 1/2W 2.2MΩ ±5%	
R 1030	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 1031	RCE0793	R, Carbon 1/4W 100kΩ ±5%	
R 1032	RCE0757	R, Carbon 1/4W 100Ω ±5%	
J 1001	8390152	Socket 1339 (CRT)	
P 1031	JBB0021	Connector B3B-XH-A	
P 1032	JBB0021	Connector B3B-XH-A	
P 1035	JBB0021	Connector B3B-XH-A	

8 POWER SUPPLY 1

Symbol	Part Code	Description	Remarks
R 1101	RCE0729	R, Carbon 1/2W 100kΩ ±5%	
R 1102	RCE0425	R, Carbon 1/4W 1.0kΩ ±5%	
R 1103	RCE0774	R, Carbon 1/4W 2.7kΩ ±5%	
R 1104	RME1091	R, Metal 1/4W 39.2kΩ ±1%	
R 1105	RCE0775	R, Carbon 1/4W 3.3kΩ ±5%	
R 1106	RME1084	R, Metal 1/4W 10.0kΩ ±1%	
R 1107	RCE0785	R, Carbon 1/4W 22kΩ ±5%	
R 1109	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 1110	RCE0761	R, Carbon 1/4W 220Ω ±5%	
R 1111	RCE0761	R, Carbon 1/4W 220Ω ±5%	
R 1121	RCE0761	R, Carbon 1/4W 220Ω ±5%	
R 1124	RCE0783	R, Carbon 1/4W 15kΩ ±5%	
R 1125	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 1131	RCE0685	R, Carbon 1/2W 22Ω ±5%	
R 1132	RCE0685	R, Carbon 1/2W 22Ω ±5%	
R 1141	RCE0798	R, Carbon 1/4W 330kΩ ±5%	
R 1142	RCE0787	R, Carbon 1/4W 33kΩ ±5%	
C 1101	CES0201	C, AL Elyc 160V 47μF ±20%	
C 1102	CES0203	C, AL Elyc 250V 47μF ±20%	
C 1109	CES0202	C, AL Elyc 160V 10μF ±20%	
C 1110	CQA0092	C, Plastic 50V 0.0015μF ±10%	
C 1111	CES0204	C, AL Elyc 25V 2200μF ±20%	
C 1112	CES0028	C, AL Elyc 10V 47μF/LB ±20%	
C 1121	CES0204	C, AL Elyc 25V 2200μF ±20%	
C 1122	CES0028	C, AL Elyc 10V 47μF/LB ±20%	
C 1124	CQA0101	C, Plastic 50V 0.047μF ±10%	
C 1131	CES0036	C, AL Elyc 25V 22μF/LB ±20%	
C 1138	CES0028	C, AL Elyc 10V 47μF/LB ±20%	
TR 1101	HTA0104	Transistor 2SA778AK TZ	
TR 1103	HTA0224	Transistor 2SA1029D TZ	
TR 1104	HTC0148	Transistor 2SC458C TZ	
IC 1121	ILM0342	Analog IC M PC7908	
D 1101	HDS0476	Diode S5566J (TPA3)	
D 1102	HDS0476	Diode S5566J (TPA3)	
D 1103	HDS0476	Diode S5566J (TPA3)	
D 1104	HDS0476	Diode S5566J (TPA3)	
D 1105	HDS0476	Diode S5566J (TPA3)	
D 1106	HDS0476	Diode S5566J (TPA3)	
D 1111	HDS0475	Diode S5566B (TPA3)	
D 1112	HDS0475	Diode S5566B (TPA3)	
D 1113	HDS0475	Diode S5566B (TPA3)	
D 1114	HDS0475	Diode S5566B (TPA3)	
P 1101	JBX0703	Connector 1-171825-0	

Scale, illum lamp

Symbol	Part Code	Description	Remarks
PL 1401	8400068	Lamp (8V 0.12A)	
PL 1402	8400068	Lamp (8V 0.12A)	
PL 1403	8400068	Lamp (8V 0.12A)	

Panel & others

Symbol	Part Code	Description	Remarks
J 1102	JJC0026	Connector CM3 (C-170)	
J 1103	3142147	Unit PWP S-17221 (100/120/220/240V)	
S 1101	8400067	SW, PB SDV 3P	
T 1101	8410379A	for VC-6041	
D 1110	HDS0408	Diode SR503D with mount(red)	
TR 1310	HTD0155	Transistor 2SD313E	

9 RV/LAMP

Symbol	Part Code	Description	Remarks
R 932	RCE0738	R, Carbon 1/2W 2.2MΩ ±5%	
R 933	RMW0008	R, Metal VR37-15MΩ ±5%	
R 1019	RCE0798	R, Carbon 1/4W 330kΩ ±5%	
R 1301	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 1310	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 1311	RCE0775	R, Carbon 1/4W 3.3kΩ ±5%	
R 1312	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
RV 1301	8348452	RV, Carbon EVH-CCAK20B14	
RV 1311	8348452	RV, Carbon EVH-CCAK20B14	
RV 1401	RNE0059	VR, Metal EVMNDGK20B26	
TR 1311	HTA0224	Transistor 2SA1029D TZ	
D 1310	HDS0437	Diode 1SS133 T-77	

10-11 BACK BOARD & PLOT OUT CONT

Symbol	Part Code	Description	Remarks
J 5100	JBP0147	Connector PS-60SD-D4TS1-1	
J 5101	JBP0147	Connector PS-60SD-D4TS1-1	
J 5500	JBP0147	Connector PS-60SD-D4TS1-1	
J 5501	JBP0147	Connector PS-60SD-D4TS1-1	
J 5700	JBP0147	Connector PS-60SD-D4TS1-1	
J 5701	JBP0147	Connector PS-60SD-D4TS1-1	
TR 7800	HTC0148	Transistor 2SC458C	
	IDM0379	IC μPD8255AC-5	
	ILH0130	IC HA17408P	
	IZH0018	IC HA17012PB	
	ILH0091	IC HA17458PS	
	IDH0471	IC HD74LS04P	
	IDH0833	IC HD74LS125AP	
R 7800	RCE0781	R, Carbon 1/4W 10kΩ ±5%	
R 7801	RCE0769	R, Carbon 1/4W 1000Ω ±5%	
R 7802	RME1060	R, Metal 1/4W 100Ω ±1%	
R 7803	RME1060	R, Metal 1/4W 100Ω ±1%	
R 7804	RME1078	R, Metal 1/4W 3320Ω ±1%	
R 7805	RME1078	R, Metal 1/4W 3320Ω ±1%	
R 7806	RME1078	R, Metal 1/4W 3320Ω ±1%	
R 7807	RME1078	R, Metal 1/4W 3320Ω ±1%	
R 7808	RME1085	R, Metal 1/4W 12.1kΩ ±1%	
R 7809	RME1085	R, Metal 1/4W 12.1kΩ ±1%	
R 7810	RME1085	R, Metal 1/4W 12.1kΩ ±1%	
R 7811	RME1085	R, Metal 1/4W 12.1kΩ ±1%	
R 7812	RME1073	R, Metal 1/4W 1210Ω ±1%	
R 7813	RME1079	R, Metal 1/4W 3920Ω ±1%	
R 7814	RME1079	R, Metal 1/4W 3920Ω ±1%	
R 7815	RCE0749	R, Carbon 1/4W 22Ω ±5%	
C 7800	CES0028	C, AL Elyc 10V 47μF ±20%	
C 7801	CES0032	C, AL Elyc 25V 47μF ±20%	
C 7802	CES0032	C, AL Elyc 25V 47μF ±20%	
C 7803	CES0032	C, AL Elyc 25V 47μF ±20%	
C 7804	CES0032	C, AL Elyc 25V 47μF ±20%	
C 7805	CES0032	C, AL Elyc 25V 47μF ±20%	
C 7806	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 7807	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 7808	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 7809	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 7810	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 7811	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 7812	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 7813	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 7814	CCC1025	C, Ceramic 50V 100 pF ±10%	
C 7815	CCC1015	C, Ceramic 50V 56 pF ±5%	
C 7817	CES0028	C, AL Elyc 10V 47μF ±20%	
C 7818	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 7819	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 7820	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
R 7824	RCE0769	R, Carbon 1/4W 1000Ω ±5%	
R 7825	RCE0769	R, Carbon 1/4W 1000Ω ±5%	
R 7826	RCE0769	R, Carbon 1/4W 1000Ω ±5%	

Symbol	Part Code	Description	Remarks
R 7827	RCE0769	R, Carbon 1/4W 1000Ω ±5%	
SW A	SSP0440	SW, Push SUJ1 Selflock	
SW B	SSP0440	SW, Push SUJ1 Selflock	
SW C	SSP0440	SW, Push SUJ1 Selflock	
SW D	SSP0440	SW, Push SUJ1 Selflock	
S 7800	SSP0441	SW, Push SUJ1 Nonlock	
P 7003	JBB0024	Connector B15B-XH-A	
P 7004	JBB0023	Connector B8B-XH-A	
P 7005	JBB0022	Connector B6B-XH-A	
RV 7801	RNE0052	VR, Metal EVN39C00YB23 (2K)	
RV 7802	RNE0052	VR, Metal EVN39C00YB23 (2K)	

12 V INTERFACE

Symbol	Part Code	Description	Remarks
	IDH0467	IC HD74LS00P	
	IDH0630	IC HD74LS157P	
	IDH0471	IC HD74LS04P	
R 9000	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 9001	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 9004	RCE0780	R, Carbon 1/4W 8.2kΩ ±5%	
R 9005	RCE0780	R, Carbon 1/4W 8.2kΩ ±5%	
R 9006	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 9007	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 9008	RCE0771	R, Carbon 1/4W 1.5kΩ ±5%	
R 9009	RCE0771	R, Carbon 1/4W 1.5kΩ ±5%	
R 9010	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 9011	RCE0764	R, Carbon 1/4W 390Ω ±5%	
R 9012	RCE0771	R, Carbon 1/4W 1.5kΩ ±5%	
R 9013	RCE0771	R, Carbon 1/4W 1.5kΩ ±5%	
R 9014	RCE0780	R, Carbon 1/4W 8.2kΩ ±5%	
R 9015	RCE0780	R, Carbon 1/4W 8.2kΩ ±5%	
R 9016	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 9017	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 9019	RCE0764	R, Carbon 1/4W 390Ω ±5%	
R 9020	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 9021	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 9022	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 9023	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 9024	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 9025	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 9026	RME1066	R, Metal 1/4W 332Ω ±1%	
R 9027	RME1066	R, Metal 1/4W 332Ω ±1%	
R 9028	RME1112	R, Metal 1/4W 301Ω ±1%	
R 9032	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 9033	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 9034	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 9035	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 9036	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 9037	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 9038	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 9039	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 9040	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 9041	RCE0782	R, Carbon 1/4W 12kΩ ±5%	
R 9042	RCE0782	R, Carbon 1/4W 12kΩ ±5%	
R 9043	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 9044	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 9045	RCE0782	R, Carbon 1/4W 12kΩ ±5%	
R 9046	RCE0782	R, Carbon 1/4W 12kΩ ±5%	
R 9047	RCE0774	R, Carbon 1/4W 2.7kΩ ±5%	
R 9048	RCE0774	R, Carbon 1/4W 2.7kΩ ±5%	
R 9049	RCE0781	R, Carbon 1/4W 10kΩ ±5%	
R 9050	RCE0781	R, Carbon 1/4W 10kΩ ±5%	
R 9059	RCE0783	R, Carbon 1/4W 15kΩ ±5%	
R 9060	RCE0783	R, Carbon 1/4W 15kΩ ±5%	
R 9061	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 9062	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 9063	RCE0785	R, Carbon 1/4W 22kΩ ±5%	
R 9064	RME1060	R, Metal 1/4W 100Ω ±5%	
R 9065	RME1060	R, Metal 1/4W 100Ω ±5%	
R 9066	RME1080	R, Metal 1/4W 4.75kΩ ±5%	
R 9067	RCE0762	R, Carbon 1/4W 270Ω ±5%	
R 9068	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 9069	RCE0755	R, Carbon 1/4W 68Ω ±5%	
R 9070	RCE0755	R, Carbon 1/4W 68Ω ±5%	
R 9110	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 9111	RCE0766	R, Carbon 1/4W 560Ω ±5%	

Symbol	Part Code	Description	Remarks
R 9112	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 9113	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 9114	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 9115	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 9116	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 9117	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 9118	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 9119	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 9120	RCE0758	R, Carbon 1/4W 120Ω ±5%	
R 9121	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 9122	RCE0758	R, Carbon 1/4W 120Ω ±5%	
R 9123	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 9124	RCE0764	R, Carbon 1/4W 390Ω ±5%	
R 9125	RCE0758	R, Carbon 1/4W 120Ω ±5%	
RV 9000	RNE0050	VR, Metal EVN39C00YB52 (500)	
RV 9001	RNE0048	VR, Metal EVN39C00YB22 (200)	
RV 9006	RNE0048	VR, Metal EVN39C00YB22 (200)	
RV 9007	RNE0048	VR, Metal EVN39C00YB22 (200)	
RV 9008	RNE0049	VR, Metal EVN39C00YB12 (100)	
C 9005	CCC1027	C, Ceramic 50V 220 pF ±10%	
C 9006	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 9007	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 9008	CCC1002	C, Ceramic 50V 10 pF +80 −20%	
C 9009	CCC1002	C, Ceramic 50V 10 pF +80 −20%	
C 9013	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 9015	CES0227	C, AL Elyc 50V 10μF ±20%	
C 9016	CES0227	C, AL Elyc 50V 10μF ±20%	
C 9017	CES0227	C, AL Elyc 50V 10μF ±20%	
C 9020	CES0133	C, AL Elyc 16V 47μF ±20%	
C 9021	CES0133	C, AL Elyc 16V 47μF ±20%	
C 9022	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 9023	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 9025	CES0133	C, AL Elyc 16V 47μF +80 −20%	
C 9026	CES0133	C, AL Elyc 16V 47μF +80 −20%	
C 9027	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 9028	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 9029	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 9069A	CCC1007	C, Ceramic 50V 22 pF +80 −20%	
C 9070A	CCC1007	C, Ceramic 50V 22 pF +80 −20%	
CV 9002	CVE0047	C, Variable ECR-HA020D11	
CV 9003	CVE0047	C, Variable ECR-HA020D11	
CV 9031	CVE0047	C, Variable ECR-HA020D11	
TR 9000	HTC0338	Transistor 2SC1906	
TR 9001	HTC0338	Transistor 2SC1906	
TR 9002	HTA0099	Transistor 2SA781K	
TR 9003	HTA0099	Transistor 2SA781K	
TR 9004	HTC0338	Transistor 2SC1906	
TR 9005	HTC0338	Transistor 2SC1906	
TR 9006	HTC0338	Transistor 2SC1906	
TR 9007	HTC0338	Transistor 2SC1906	
TR 9008	HTA0099	Transistor 2SA781K	
TR 9009	HTA0099	Transistor 2SA781K	
TR 9010	HTA0099	Transistor 2SA781K	
TR 9011	HTA0099	Transistor 2SA781K	
TR 9012	HTA0224	Transistor 2SA1029D	
TR 9013	HTA0224	Transistor 2SA1029D	

Symbol	Part Code	Description	Remarks
L 9000	TLE0128	Coil ELE-V330KA	
L 9001	TLE0136	Coil ELE-V221KA	
P 9000	JBB0024	Connector B15B-XH-A	
P 9001	JBB0021	Connector B3B-XH-A	
P 9002	JBB0021	Connector B3B-XH-A	
D 9000	HDS0108	Diode 1S2075K	
D 9001	HDS0108	Diode 1S2075K	
D 9002	HDS0108	Diode 1S2075K	
D 9006	HDS0108	Diode 1S2075K	
D 9007	HDS0108	Diode 1S2075K	
TP 9000	8391000	Test Point 1PS-1136	
TP 9001	8391000	Test Point 1PS-1136	
TP 9002	8391000	Test Point 1PS-1136	
TP 9003	8391000	Test Point 1PS-1136	
TP 9004	8391000	Test Point 1PS-1136	
TP 9005	8391000	Test Point 1PS-1136	
TP 9008	8391000	Test Point 1PS-1136	
TP 9009	8391000	Test Point 1PS-1136	

Symbol	Part Code	Description	Remarks
TR 5100	HTA0258	Transistor 2SA1210S	
TR 5102	HTA0099	Transistor 2SA781K	
TR 5103	HTA0099	Transistor 2SA781K	
TR 5104	HTA0099	Transistor 2SA781K	
TR 5105	HTA0099	Transistor 2SA781K	
TR 5106	HTA0099	Transistor 2SA781K	
TR 5107	HTA0099	Transistor 2SA781K	
TR 5108	HTA0099	Transistor 2SA781K	
TR 5109	HTA0099	Transistor 2SA781K	
TR 5110	HTA0099	Transistor 2SA781K	
TR 5111	HTA0099	Transistor 2SA781K	
TR 5112	HTK0023	Transistor 2SK43S-D	
TR 5113	HTK0023	Transistor 2SK43S-D	
TR 5114	HTK0023	Transistor 2SK43S-D	
TR 5115	HTK0023	Transistor 2SK43S-D	
TR 5116	HTK0023	2SK43S-D	
TR 5117	HTK0023	Transistor 2SK43S-D	
TR 5118	HTC0338	Transistor 2SC1906	
TR 5119	HTC0338	Transistor 2SC1906	
TR 5120	HTC0338	Transistor 2SC1906	
TR 5121	HTC0338	Transistor 2SC1906	
TR 5122	HTC0338	Transistor 2SC1906	
TR 5123	HTC0338	Transistor 2SC1906	
TR 5124	HTC0338	Transistor 2SC1906	
TR 5125	HTC0338	Transistor 2SC1906	
TR 5126	HTC0338	Transistor 2SC1906	
TR 5127	HTA0099	Transistor 2SA781K	
TR 5128	HTC0338	Transistor 2SC1906	
TR 5129	HTA0099	Transistor 2SA781K	
D 5100	HDS0415	Diode 1SS88	
D 5101	HDS0415	Diode 1SS88	
D 5102	HDS0415	Diode 1SS88	
D 5103	HDS0415	Diode 1SS88	
D 5104	HDS0415	Diode 1SS88	
D 5105	HDS0415	Diode 1SS88	
D 5106	HDS0415	Diode 1SS88	
D 5107	HDS0415	Diode 1SS88	
D 5108	HDS0415	Diode 1SS88	
D 5109	HDS0415	Diode 1SS88	
D 5110	HDS0415	Diode 1SS88	
D 5111	HDS0415	Diode 1SS88	
D 5112	HDS0415	Diode 1SS88	
D 5113	HDS0415	Diode 1SS88	
D 5114	HDS0415	Diode 1SS88	
D 5115	HDS0415	Diode 1SS88	
D 5116	HDS0415	Diode 1SS88	
D 5117	HDS0415	Diode 1SS88	
D 5118	HDS0415	Diode 1SS88	
D 5119	HDS0415	Diode 1SS88	
D 5120	HDS0415	Diode 1SS88	
D 5121	HDS0415	Diode 1SS88	
R 5102	RCE0769	R, Carbon 1/4W 1000Ω ±5%	
R 5103	RME1068	R, Metal 1/4W 475Ω ±1%	
R 5104	RME1068	R, Metal 1/4W 475Ω ±1%	
R 5107	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5108	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5109	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5110	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5111	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5112	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5113	RCE0766	R, Carbon 1/4W 560Ω ±5%	

Symbol	Part Code	Description	Remarks
R 5114	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5116	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5122	RCE0762	R, Carbon 1/4W 270Ω ±5%	
R 5123	RCE0762	R, Carbon 1/4W 270Ω ±5%	
R 5124	RCE0762	R, Carbon 1/4W 270Ω ±5%	
R 5125	RCE0762	R, Carbon 1/4W 270Ω ±5%	
R 5126	RME1088	R, Metal 1/4W 22.1kΩ ±1%	
R 5127	RME1088	R, Metal 1/4W 22.1kΩ ±1%	
R 5134	RCE0765	R, Metal 1/4W 470Ω ±5%	
R 5135	RCE0765	R, Metal 1/4W 470Ω ±5%	
R 5136	RCE0765	R, Metal 1/4W 470Ω ±5%	
R 5137	RCE0765	R, Metal 1/4W 470Ω ±5%	
R 5138	RCE0761	R, Carbon 1/4W 220Ω ±5%	
R 5139	RCE0761	R, Carbon 1/4W 220Ω ±5%	
R 5140	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 5142	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 5143	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 5144	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 5145	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 5146	RCE0779	R, Carbon 1/4W 6.8kΩ ±5%	
R 5147	RCE0779	R, Carbon 1/4W 6.8kΩ ±5%	
R 5148	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5149	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5150	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5150	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5151	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5152	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5153	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5154	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5155	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5156	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5157	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5158	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5159	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5160	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5161	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5162	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5163	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5164	RCE0752	R, Carbon 1/4W 39Ω ±5%	
R 5165	RCE0752	R, Carbon 1/4W 39Ω ±5%	
R 5166	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5168	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5170	RCE0768	R, Carbon 1/4W 820Ω ±5%	
R 5171	RCE0768	R, Carbon 1/4W 820Ω ±5%	
R 5172	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 5173	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 5174	RCE0804	R, Carbon 1/4W 75Ω ±5%	
R 5175	RCE0804	R, Carbon 1/4W 75Ω ±5%	
R 5176	RCE0772	R, Carbon 1/4W 1.8kΩ ±5%	
R 5177	RCE0772	R, Carbon 1/4W 1.8kΩ ±5%	
R 5178	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 5179	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 5180	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 5181	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 5182	RCE0743	R, Carbon 1/4W 4.7Ω ±5%	
R 5183	RCE0743	R, Carbon 1/4W 4.7Ω ±5%	
R 5184	RCE0743	R, Carbon 1/4W 4.7Ω ±5%	
R 5185	RCE0743	R, Carbon 1/4W 4.7Ω ±5%	
R 5186	RCE0803	R, Carbon 1/4W 51Ω ±5%	
R 5187	RCE0803	R, Carbon 1/4W 51Ω ±5%	
R 5188	RCE0803	R, Carbon 1/4W 51Ω ±5%	
R 5189	RCE0803	R, Carbon 1/4W 51Ω ±5%	
R 5190	RCE0803	R, Carbon 1/4W 51Ω ±5%	

Symbol	Part Code	Description	Remarks
R 5191	RCE0803	R, Carbon 1/4W 51Ω ±5%	
R 5192	RCE0803	R, Carbon 1/4W 51Ω ±5%	
R 5193	RCE0803	R, Carbon 1/4W 51Ω ±5%	
R 5194	RCE0803	R, Carbon 1/4W 51Ω ±5%	
R 5195	RCE0803	R, Carbon 1/4W 51Ω ±5%	
R 5196	RCE0803	R, Carbon 1/4W 51Ω ±5%	
R 5197	RCE0803	R, Carbon 1/4W 51Ω ±5%	
R 5198	RCE0803	R, Carbon 1/4W 51Ω ±5%	
R 5199	RCE0803	R, Carbon 1/4W 51Ω ±5%	
R 5200	RME1062	R, Metal 1/4W 150Ω ±1%	
R 5201	RME1062	R, Metal 1/4W 150Ω ±1%	
R 5202	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 5203	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 5204	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 5205	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 5206	RCE0758	R, Carbon 1/4W 120Ω ±5%	
R 5207	RCE0758	R, Carbon 1/4W 120Ω ±5%	
R 5208	RCE0758	R, Carbon 1/4W 120Ω ±5%	
R 5209	RCE0758	R, Carbon 1/4W 120Ω ±5%	
R 5210	RME1057	R, Metal 1/4W 56.2Ω ±1%	
R 5211	RME1057	R, Metal 1/4W 56.2Ω ±1%	
R 5242	RCE0766	R, Carbon 1/4W 560Ω ±1%	
R 5243	RCE0766	R, Carbon 1/4W 560Ω ±1%	
R 5244	RCE0766	R, Carbon 1/4W 560Ω ±1%	
R 5245	RCE0766	R, Carbon 1/4W 560Ω ±1%	
R 5246	RCE0763	R, Carbon 1/4W 330Ω ±1%	
R 5247	RCE0763	R, Carbon 1/4W 330Ω ±1%	
R 5248	RCE0766	R, Carbon 1/4W 560Ω ±1%	
R 5249	RCE0766	R, Carbon 1/4W 560Ω ±1%	
R 5250	RCE0766	R, Carbon 1/4W 560Ω ±1%	
R 5251	RCE0766	R, Carbon 1/4W 560Ω ±1%	
R 5252	RCE0763	R, Carbon 1/4W 330Ω ±1%	
R 5253	RCE0763	R, Carbon 1/4W 330Ω ±1%	
R 5254	RME1066	R, Metal 1/4W 332Ω ±1%	
R 5255	RME1066	R, Metal 1/4W 332Ω ±1%	
R 5157	RME1067	R, Metal 1/4W 392Ω ±1%	
R 5258	RME1067	R, Metal 1/4W 392Ω ±1%	
R 5263	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5264	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 5265	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 5266	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5267	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 5267A	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 5268	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 5169	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5269A	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 5270	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 5271	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 5272	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5273	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 5274	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 5276	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5277	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5278	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5279	RME1060	R, Metal 1/4W 100Ω ±1%	
R 5280	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5281	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5282	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5283	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5284	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5285	RME1061	R, Metal 1/4W 121Ω ±1%	
R 5286	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5287	RCE0766	R, Carbon 1/4W 560Ω ±5%	

Symbol	Part Code	Description	Remarks
R 5288	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5289	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5290	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5291	RME1061	R, Metal 1/4W 121Ω ±1%	
R 5292	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5293	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5294	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5295	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 5296	RCE0766	R, Carbon 1/4W 560Ω ±5%	
RV 5100	RNE0051	VR, Metal EVN39C00YB14 (10K)	
RV 5102	RNE0051	VR, Metal EVN39C00YB14	
RV 5103	RNE0051	VR, Metal EVN39C00YB14	
RV 5104	RNE0058	VR, Metal EVN39C00YB13 (1K)	
RV 5105	RNE0058	VR, Metal EVN39C00YB13 (1K)	
RV 5106	RNE0049	VR, Metal EVN39C00YB12 (100)	
RV 5109	RNE0048	VR, Metal EVN39C00YB22 (200)	
RV 5110	RNE0048	VR, Metal EVN39C00YB22 (200)	
C 5161	CES0133	C, AL Elyc 16V 47μF ±20%	
C 5162	CES0133	C, AL Elyc 16V 47μF ±20%	
C 5163	CES0133	C, AL Elyc 16V 47μF ±20%	
C 5164	CES0133	C, AL Elyc 16V 47μF ±20%	
C 5165	CES0133	C, AL Elyc 16V 47μF ±20%	
C 5166	CES0226	C, AL Elyc 50V 3.3μF ±20%	
C 5167	CES0226	C, AL Elyc 50V 3.3μF ±20%	
C 5168	CMD0904	C, Mica 100V 47 pF	
C 5169	CES0226	C, AL Elyc 50V 3.3μF ±20%	
C 5170	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5171	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5172	CMD0477	C, Mica 100V 100 pF ±5%	
C 5173	CMD0477	C, Mica 100V 100 pF ±5%	
C 5174	CES0226	C, AL Elyc 50V 3.3μF ±20%	
C 5175	CES0226	C, AL Elyc 50V 3.3μF ±20%	
C 5176	CES0226	C, AL Elyc 50V 3.3μF ±20%	
C 5177	CES0226	C, AL Elyc 50V 3.3μF ±20%	
C 5178	CES0226	C, AL Elyc 50V 3.3μF ±20%	
C 5179	CES0226	C, AL Elyc 50V 3.3μF ±20%	
C 5180	CES0226	C, AL Elyc 50V 3.3μF ±20%	
C 5181	CES0226	C, AL Elyc 50V 3.3μF ±20%	
C 5182	CES0226	C, AL Elyc 50V 3.3μF ±20%	
C 5183	CES0226	C, AL Elyc 50V 3.3μF ±20%	
C 5184	CES0226	C, AL Elyc 50V 3.3μF ±20%	
C 5185	CES0226	C, AL Elyc 50V 3.3μF ±20%	
C 5186	CES0226	C, AL Elyc 50V 3.3μF ±20%	
C 5187	CES0226	C, AL Elyc 50V 3.3μF ±20%	
C 5188	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5189	CES0037	C, AL Elyc 50V 1μF ±20%	
C 5190	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5191	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5192	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5193	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5194	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5195	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5196	CCC1029	C, Ceramic 50V 1000 pF +80 −20%	
C 5197	CCC1029	C, Ceramic 50V 1000 pF +80 −20%	
C 5198	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5199	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5200	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	

Symbol	Part Code	Description	Remarks
C 5201	CES0037	C, AL Elyc 50V 1μF ±20%	
C 5202	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5203	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5204	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5205	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5206	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5207	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5208	CCC1029	C, Ceramic 50V 1000 pF +80 −20%	
C 5209	CCC1029	C, Ceramic 50V 1000 pF +80 −20%	
C 5210	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5211	CCC1036	C, Ceramic 50V 22000 pF +80 −20%	
C 5212	CMD0025	C, Mica 100V 47 pF ±5%	
C 5213	CMD0025	C, Mica 100V 47 pF ±5%	
C 5230	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5231	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5232	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5233	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5234	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5235	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5236	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5237	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5238	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5239	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5240	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5241	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5242	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5246	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5247	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5248	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5251	CES0133	C, AL Elyc 16V 47μF ±20%	
C 5252	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5253	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5254	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5255	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5256	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5257	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5258	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5259	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5260	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5261	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5262	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5263	CMD0904	C, Mica 100V 47 pF	
C 5264	CMD0904	C, Mica 100V 47 pF	
C 5266	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5267	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5268	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5269	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	

Symbol	Part Code	Description	Remarks
C 5271	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5272	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5280	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5281	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5282	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5283	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5286	CMD0180	C, Mica 100V 220 pF ±5%	
P 5102	JBX1856	Connector 3433-1002LCS	
P 5103	JBX1856	Connector 3433-1002LCS	
P 5104	JBS0024	Connector S8F-XH-A	
T 5100	TTT0324	XFMR TR-101	
T 5101	TTT0324	XFMR TR-101	
TP 5100	8391000	Test Point 1PS-1136	
TP 5101	8391000	Test Point 1PS-1136	
TP 5102	8391000	Test Point 1PS-1136	
TP 5103	8391000	Test Point 1PS-1136	
TP 5104	8391000	Test Point 1PS-1136	
TP 5105	8391000	Test Point 1PS-1136	
TP 5106	8391000	Test Point 1PS-1136	
TP 5107	8391000	Test Point 1PS-1136	
TP 5108	8391000	Test Point 1PS-1136	
TP 5109	8391000	Test Point 1PS-1136	
TP 5110	8391000	Test Point 1PS-1136	
TP 5111	8391000	Test Point 1PS-1136	
TP 5112	8391000	Test Point 1PS-1136	
TP 5113	8391000	Test Point 1PS-1136	
TP 5114	8391000	Test Point 1PS-1136	
TP 5115	8391000	Test Point 1PS-1136	
TP 5116	8391000	Test Point 1PS-1136	
TP 5117	8391000	Test Point 1PS-1136	
TP 5118	8391000	Test Point 1PS-1136	
TP 5119	8391000	Test Point 1PS-1136	
	EDZ0013	Delay Line ZT10-50 (50NS)	2 pcs
	IZC0002	IC CX-20052	2 pcs
	IDH0007	IC HD10125	4 pcs
	IDS0257	IC SN74LS273N	2 pcs
	IDS0384	IC SN74S374N	3 pcs
	IDH0004	IC HD10105	2 pcs
	IDH0004	IC HD10105	2 pcs
	IDH0004	IC HD10105	3 pcs
	IDH0004	IC HD10105	3 pcs
	IDH0006	IC HD10124	2 pcs
	IDS0367	IC SN74S0BN	1 pcs
	ILH0091	IC HA17458PS	1 pcs

15-16 TIME BASE & ACQ CONT

Symbol	Part Code	Description	Remarks
	IDH0402	IC HD74S00	
	IDH0538	IC HD74S02	
	IDH0406	IC HD74S04	
	IDS0367	IC SN74S08N	
	IDH0428	IC HD74S74	2 pcs
	IDH0836	IC HD74S139P	
	IDS0377	IC SN74S161N	
	IDS0394	IC SN74S196N	
	IDH0666	IC HD74LS08P	2 pcs
	IDH0630	IC HD74LS157P	3 pcs
	IDH0617	IC HD74LS161P	3 pcs
	IDH0651	IC HD74LS164P	
	IDS0295	IC SN74LS244N	
	IDH0875	IC HD74LS374P	
	IDH0402	IC HD74S00	2 pcs
	IDH0406	IC HD74S04	
	IDS0367	IC SN74S08N	2 pcs
	IDH0428	IC HD74S74	3 pcs
	IDH0446	IC HD74S151	
	IDH0840	IC HD74S153P	
	IDS0377	IC SN74S161N	3 pcs
	IDH0452	IC HD74S174	
	IDH0467	IC HD74LS00P	
	IDH0471	IC HD74LS04P	
	IDH0618	IC HD74LS32P	
	IDH0586	IC HD74LS74AP	
	IDH0651	IC HD74LS164P	3 pcs
	IDH0651	IC HD74LS164P	3 pcs
	IDS0257	IC SN74LS273N	2 pcs
	IDS0257	IC SN74LS273N	2 pcs
R 5100	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5101	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5500	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5501	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5502	RCE0761	R, Carbon 1/4W 220Ω ±5%	
R 5503	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 5504	RME1060	R, Metal 1/4W 100Ω ±1%	
C 5143	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5144	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5145	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5146	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5147	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5148	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5149	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5150	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5151	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5152	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5153	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5154	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5155	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5156	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5157	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5158	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5159	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5500	CES0028	C, AL Elyc 10V 47μF ±20%	

Symbol	Part Code	Description	Remarks
C 5501	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5502	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5503	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5504	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5505	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5506	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5507	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5508	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5509	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5510	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5511	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5512	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5513	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5514	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5515	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5516	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5517	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5518	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5519	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5520	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5521	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5522	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5523	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5524	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5525	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5526	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5527	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5528	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5529	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5530	CMD0197	C, Plastic 100V 330pF ±5%	
C 5531	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5532	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
C 5533	CCC1030	C, Ceramic 50V 10000pF +80 -20%	
	8365259A	E-12236 White 94V-2	2 pcs
	XCA0425	2x8 AW SK-5	2 pcs
P 5000	JBP0187	Connector PS-60PA-D4LT1-A1	
P 5001	JBP0187	Connector PS-60PA-D4LT1-A1	
X 5500	AAT002	Crystal TD308A (40MHz)	

17-19 ACQ MEMORY

Symbol	Part Code	Description	Remarks
	8365259A	E-12236 White 94V-2	2 pcs
	XCA0452	2x8 AW SK-5	2 pcs
	IDH0877	IC HM6148LP	3 pcs
	IDH0877	IC HM6148LP	3 pcs
	IDH0877	IC HM6148LP	3 pcs
	IDH0877	IC HM6148LP	3 pcs
	IDH0877	IC HM6148LP	3 pcs
	IDH0877	IC HM6148LP	
	IDH0875	IC HD74LS374P	3 pcs
	IDH0875	IC HD74LS374P	3 pcs
	IDH0875	IC HD74LS374P	3 pcs
	IDH0875	IC HD74LS374P	3 pcs
	IDH0875	IC HD74LS374P	2 pcs
	IDS0295	IC SN74LS244N	3 pcs
	IDS0295	IC SN74LS244N	3 pcs
	IDS0295	IC SN74LS244N	2 pcs
	IDH0619	IC HD74LS139P	
	IDH0402	IC HD74S00	
	IDH0586	IC HD74LS74AP	
	IDH0666	IC HD74LS08P	
	IDH0820	IC HD74LS123P	
C 5100	CES0028	C, AL Elyc 10V 47μF ±20%	
C 5101	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5102	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5103	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5104	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5105	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5106	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5107	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5108	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5109	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5110	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5111	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5112	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5113	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5114	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5115	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5116	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5117	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5118	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5119	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5120	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5121	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5122	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5123	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5124	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5125	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5126	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5127	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5128	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5129	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	

Symbol	Part Code	Description	Remarks
C 5130	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5131	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5132	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5133	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5134	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5135	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5136	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5137	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5138	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5139	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5140	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5228	CES0028	C, AL Elyc 10V 47μF ±20%	
C 5229	CES0028	C, AL Elyc 10V 47μF ±20%	
C 5241	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5242	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5243	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
R 5216	RCE0792	R, Carbon 1/4W 82kΩ ±5%	
R 5217	RCE0789	R, Carbon 1/4W 47kΩ ±5%	
R 5218	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5219	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 5220	RCE0790	R, Carbon 1/4W 56kΩ ±5%	
R 5221	RCE0778	R, Carbon 1/4W 5.6kΩ ±5%	
R 5222	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5223	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5224	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5225	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5226	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5227	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5228	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5229	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5230	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5231	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5232	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5233	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5234	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5235	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5236	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5237	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5238	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5239	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5240	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5241	RCE0763	R, Carbon 1/4W 330Ω ±5%	
P 5100	JBP0187	Connector PS-60PA-D4LT1-A1	
P 5101	JBP0187	Connector PS-60PA-D4LT1-A1	
TR 5200	HTA0099	Transistor 2SA781K	

20-21 MICRO PROCESSOR

Symbol	Part Code	Description	Remarks
	IDH0666	IC HD74LS08P	
	IDH0207	IC HD7414P	
	IDH0187	IC HD7406P	
	IDH0618	IC HD74LS32P	
	IDH0618	IC HD74LS32P	
	IDH0618	IC HD74LS32P	
	IDH0618	IC HD74LS32P	
	IDH0649	IC HD74LS138P	
	IDH0649	IC HD74LS138P	
	IDH0649	IC HD74LS138P	
	IDH0649	IC HD74LS138P	
	IDH0649	IC HD74LS138P	
	IDH0619	IC HD74LS139P	
	IDH0619	IC HD74LS139P	
	IDH0835	IC HD74LS154P	
	IDS0295	IC SN74LS244N	
	IDS0295	IC SN74LS244N	
	IDS0295	IC SN74LS244N	
	IDS0288	IC SN74LS245N	
	IDS0367	IC SN74S08N	
	IDH0725	IC HM6116LP-4	
	IDH0725	IC HM6116LP-4	
	IDH0725	IC HM6116LP-4	
	IDH0725	IC HM6116LP-4	
	IDH0725	IC HM6116LP-4	
	IDH0930	IC HN482732AG-25	5 pcs
	IDM0445	IC MPD780C-1	
D 5700	HDS0107	Diode 1S2074H	
R 5700	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5701	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5702	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5703	RCE0759	R, Carbon 1/4W 150Ω ±5%	
R 5704	RCE0789	R, Carbon 1/4W 47kΩ ±5%	
R 5705	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 5706	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 5707	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 5708	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 5709	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 5710	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 5711	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 5712	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 5713	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 5714	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 5715	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5716	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5717	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5718	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
	IYI0083	IC Socket ICA-246-S-G	5 pcs
C 5700	CES0036	C, AL Elyc 25V 22μF ±20%	
C 5701	CCC1160	C, Ceramic 50V 330pF ±10%	
C 5702	CCC1160	C, Ceramic 50V 330pF ±10%	

Symbol	Part Code	Description	Remarks
C 5703	CES0028	C, AL Elyc 10V 47μF ±20%	
C 5704	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5705	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5706	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5707	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5708	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5709	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5710	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5711	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5712	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5713	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5714	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5715	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5716	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5717	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5718	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5719	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5720	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5721	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5722	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5723	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5724	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5725	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5726	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5727	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5728	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5729	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5730	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5731	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5732	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
C 5733	CCC1030	C, Ceramic 50V 10000pF +80% -20%	
X 5700	EZZ0078	OSC CSA4.00MT	
P 5700	JBP0187	Connector PS-60PA-D4LT1-A1	
P 5701	JBP0187	Connector PS-60PA-D4LT1-A1	
	8365259A	E-12236 White 94V-2	2 pcs
	XCA0425	2x8 AW SK-5	2 pcs

22 GP-IB (Option)

Symbol	Part Code	Description	Remarks
	IDS0392	IC TMS9914NL	
	IDS0390	IC SN75160N	
	IDS0391	IC SN75161N	
	IDS0295	IC SN74LS244N	
	IDH0471	IC HD74LS04P	
R 5816	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5817	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5818	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5819	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5820	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5821	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5823	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5829	RCE0783	R, Carbon 1/4W 15kΩ ±5%	
R 6014	RCR3063	R, Carbon 1/4W 3kΩ ±5%	
R 6016	RCR3071	R, Carbon 1/4W 6.2kΩ ±5%	
S 5800	SSL0069	Lever SW DNT-6	
P 5802	JBX1940	57LE-20240-27C0D35	
C 5821	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5822	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5823	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5824	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5825	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5829	CES0028	C, AL Elyc 10V 47μF ±20%	

23-26 DISPLAY MEMORY & PANEL CONT

Symbol	Part Code	Description	Remarks
C 5002	CCC1029	C, Ceramic 50V 1000 pF +80 −20%	
C 5003	CCC1034	C, Ceramic 50V 68 pF ±5%	
C 5004	CCR0090	C, Ceramic 50V 0.1μF +80 −20%	
C 5005	CCR0090	C, Ceramic 50V 0.1μF +80 −20%	
C 5006	CQA0103	C, Plastic 50V 0.1μF ±10%	
C 5008	CES0133	C, AL Elyc 16V 47μF	
C 5009	CES0133	C, AL Elyc 16V 47μF	
C 5010	CES0133	C, AL Elyc 16V 47μF	
C 5011	CES0133	C, AL Elyc 16V 47μF	
C 5013	CES0133	C, AL Elyc 16V 47μF	
C 5014	CES0133	C, AL Elyc 16V 47μF	
C 5015	CES0133	C, AL Elyc 16V 47μF	
C 5017	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5018	CQA0103	C, Plastic 50V 0.1μF ±10%	
C 5020	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5021	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5022	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5023	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5024	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5025	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5026	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5027	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5028	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5029	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5030	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5031	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5032	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5035	CES0133	C, AL Elyc 16V 47μF	
C 5036	CES0133	C, AL Elyc 16V 47μF	
C 5037	CES0133	C, AL Elyc 16V 47μF	
C 5042	CCC1025	C, Ceramic 50V 100 pF ±10%	
C 5049	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5050	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5051	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5052	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5053	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5058	CCC1025	C, Ceramic 50V 100 pF ±10%	
C 5300	CES0133	C, AL Elyc 10V 47μF	
C 5301	CES0133	C, AL Elyc 10V 47μF	
C 5302	CES0133	C, AL Elyc 10V 47μF	
C 5303	CES0133	C, AL Elyc 10V 47μF	
C 5304	CES0133	C, AL Elyc 10V 47μF	
C 5305	CES0133	C, AL Elyc 10V 47μF	
C 5306	CCC1025	C, Ceramic 50V 100 pF ±10%	
C 5307	CCC1025	C, Ceramic 50V 100 pF ±10%	
C 5308	CCC1182	C, Ceramic 50V 1000 pF ±10%	
C 5309	CES0133	C, AL Elyc 16V 47μF	
C 5310	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5311	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5312	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5313	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5314	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5315	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	

Symbol	Part Code	Description	Remarks
C 5316	CCC1004	C, Ceramic 50V 15 pF ±5%	
C 5317	CQA0103	C, Plastic 50V 0.1 μF ±10%	
C 5318	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5319	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5320	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5321	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5322	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5323	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5324	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5325	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5326	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5327	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5328	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5329	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5330	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5331	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5332	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5333	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5334	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5335	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5336	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5337	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5338	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5339	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5340	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5341	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5342	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5343	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5344	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5345	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5346	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5347	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5348	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5349	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5350	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5351	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5352	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5355	CES0133	C, AL Elyc 16V 47 μF ±20%	
C 5356	CES0133	C, AL Elyc 16V 47 μF ±20%	
C 5357	CES0133	C, AL Elyc 16V 47 μF ±20%	
C 5358	CES0133	C, AL Elyc 16V 47 μF ±20%	
C 5359	CES0133	C, AL Elyc 16V 47 μF ±20%	
C 5360	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5361	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5362	CES0133	C, AL Elyc 16V 47 μF ±20%	
C 5363	CMD0186	C, Mica 100V 240 pF ±5%	
C 5364	CMD0186	C, Mica 100V 240 pF ±5%	
C 5365	CES0133	C, AL Elyc 16V 47 μF ±20%	
C 5366	CES0133	C, AL Elyc 16V 47 μF ±20%	
C 5367	CCC1160	C, Ceramic 50V 1000 pF ±10%	

Symbol	Part Code	Description	Remarks
C 5368	CCC1160	C, Ceramic 50V 1000 pF ±10%	
C 5369	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5370	CCC1186	C, Ceramic 50V 2200 pF ±10%	
C 5371	CCC1004	C, Ceramic 50V 15 pF +80 −20%	
C 5372	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 6000	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 6001	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 6002	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 6003	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 6004	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 6005	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 6006	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 6007	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 6008	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 6009	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
D 5000	HDS0108	Diode 1S2075K	
D 5001	HDS0108	Diode 1S2075K	
D 5002	HDH0029	Diode HZ5B	
D 5003	HDM0051	Diode MA161TAS	
D 5005	HDS0108	Diode 1S2075K	
D 5006	HDH0029	Diode HZ5B	
D 5042	HDH0029	Diode HZ5B	
D 5321	HDS0108	Diode 1S2075K	
D 6000	HDS0108	Diode 1S2075K	
D 6001	HDS0108	Diode 1S2075K	
D 6002	HDS0108	Diode 1S2075K	
D 6003	HDS0108	Diode 1S2075K	
D 6004	HDM0051	Diode MA161TAS	
D 6005	HDS0108	Diode 1S2075K	
D 6006	HDS0108	Diode 1S2075K	
D 6007	HDS0108	Diode 1S2075K	
D 6027	HDS0108	Diode 1S2075K	
TR 5000	HTA0105	Transistor 2SA836D	
TR 5001	HTA0105	Transistor 2SA836D	
TR 5002	HTC0148	Transistor 2SC458C	
TR 5003	HTC0148	Transistor 2SC458C	
TR 5006	HTC0148	Transistor 2SC458C	
TR 5300	HTC0148	Transistor 2SC458C	
TR 5301	HTC0148	Transistor 2SC458C	
	IDH0467	IC HD74LS00P	
	IDH0649	IC HD74LS138P	
	IDH0674	IC HD74LS240P	
	IDS0257	IC SN74LS273N	
	IDS0257	IC SN74LS273N	
	IDS0257	IC SN74LS273N	
	IDS0257	IC SN74LS273N	
	IDH0850	IC HD14511BP	
	IDH0345	IC HD75452P	
	IDH0345	IC HD75452P	
	IDH0666	IC HD74LS08P	
	IDH0402	IC HD74S00	
	IDH0406	IC HD74S04	
	IDH0406	IC HD74S04	
	IDH0367	IC SN74S08N	
	IDH0367	IC SN74S08N	

Symbol	Part Code	Description	Remarks
	IDH0586	IC HD74LS74AP	
	IDH0586	IC HD74LS74AP	
	IDH0617	IC HD74LS161P	
	IDH0617	IC HD74LS161P	
	IDH0617	IC HD74LS161P	
	IDS0257	IC SN74LS273N	
	IDH0820	IC HD74LS123P	
	IDH0448	IC HD74S157	
	IDH0799	IC HD14049UBP (MC14049UBCP)	
	ILT0037	IC TL081CP	
	ILH0091	IC HA17458PS	
	IZH0018	IC HA17012PB	
	IDH0467	IC HD74LS00P	
	IDH0467	IC HD74LS00P	
	IDH0471	IC HD74LS04P	
	IDH0666	IC HD74LS08P	
	IDH0666	IC HD74LS08P	
	IDH0666	IC HD74LS08P	
	IDH0618	IC HD74LS32P	
	IDH0618	IC HD74LS32P	
	IDH0586	IC HD74LS74AP	
	IDH0586	IC HD74LS74AP	
	IDH0586	IC HD74LS74AP	
	IDH0820	IC HD74LS123P	
	IDH0820	IC HD74LS123P	
	IDH0630	IC HD74LS157P	
	IDH0630	IC HD74LS157P	
	IDH0630	IC HD74LS157P	
	IDH0630	IC HD74LS157P	
	IDH0630	IC HD74LS157P	
	IDH0630	IC HD74LS157P	
	IDH0640	IC HD74LS85	
	IDH0640	IC HD74LS85	
	IDH0832	IC HD74LS191P	
	IDH0832	IC HD74LS191P	
	IDH0674	IC HD74LS240P	
	IDS0288	IC SN74LS245N	
	IDS0288	IC SN74LS245N	
	IDS0257	IC SN74LS273N	
	IDS0257	IC SN74LS273N	
	IDS0257	IC SN74LS273N	
	IDH0876	IC HD74LS298P	
	IDH0876	IC HD74LS298P	
	IDH0818	IC HM6116P-3	
	IDH0818	IC HM6116P-3	
	IDH0818	IC HM6116P-3	
	IDH0818	IC HM6116P-3	
	IDH0730	IC HD46505RP-1	
	ILH0130	IC HA17408P	
	ILH0130	IC HA17408P	
P 5300	JBX1856	Connector 3433-1002LCS	
P 5301	JBX1856	Connector 3433-1002LCS	
P 5302	JBS0024	Connector S8B-XH-A	
P 5304	JBB0023	Connector B8B-XH-A	
P 6001	JBB0024	Connector B15B-XH-A	
R 5001	RME1078	R, Metal 1/4W 3.32kΩ ±1%	
R 5002	RME1072	R, Metal 1/4W 1.00kΩ ±1%	
R 5003	RME1072	R, Metal 1/4W 1.00kΩ ±1%	
R 5004	RME1060	R, Metal 1/4W 100Ω ±1%	
R 5005	RME1085	R, Metal 1/4W 12.1kΩ ±1%	

Symbol	Part Code	Description	Remarks
R 5006	RME1085	R, Metal 1/4W 12.1kΩ ±1%	
R 5008	RME1086	R, Metal 1/4W 15.0kΩ ±1%	
R 5009	RCE0783	R, Carbon 1/4W 15kΩ ±5%	
R 5012	RME1133	R, Metal 1/4W 71.5kΩ ±1%	
R 5013	RME1084	R, Metal 1/4W 10.0kΩ ±1%	
R 5014	RME1084	R, Metal 1/4W 10.0kΩ ±1%	
R 5015	RME1084	R, Metal 1/4W 10.0kΩ ±1%	
R 5016	RME1084	R, Metal 1/4W 10.0kΩ ±1%	
R 5017	RME1084	R, Metal 1/4W 10.0kΩ ±1%	
R 5018	RME1084	R, Metal 1/4W 10.0kΩ ±1%	
R 5020	RME1060	R, Metal 1/4W 100Ω ±1%	
R 5021	RCE0789	R, Carbon 1/4W 47kΩ ±5%	
R 5022	RCE0776	R, Carbon 1/4W 3.9kΩ ±5%	
R 5023	RCE0779	R, Carbon 1/4W 6.8kΩ ±5%	
R 5024	RCE0776	R, Carbon 1/4W 3.9kΩ ±5%	
R 5025	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5032	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 5033	RCE0786	R, Carbon 1/4W 27kΩ ±5%	
R 5034	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5036	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5045	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 5046	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 5047	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 5048	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 5049	RCE0778	R, Carbon 1/4W 5.6kΩ ±5%	
R 5052	RCE0788	R, Carbon 1/4W 39kΩ ±5%	
R 5053	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5055	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5056	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5057	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5058	RCE0776	R, Carbon 1/4W 3.9kΩ ±5%	
R 5059	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 5060	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5062	RME1083	R, Metal 1/4W 8.25kΩ ±1%	
R 5063	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5064	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 5300	RME1072	R, Metal 1/4W 1.00kΩ ±1%	
R 5301	RME1072	R, Metal 1/4W 1kΩ ±1%	
R 5302	RME1078	R, Metal 1/4W 3.32kΩ ±1%	
R 5303	RME1078	R, Metal 1/4W 3.32kΩ ±1%	
R 5304	RME1078	R, Metal 1/4W 3.32kΩ ±1%	
R 5305	RME1078	R, Metal 1/4W 3.32kΩ ±1%	
R 5306	RME1078	R, Metal 1/4W 3.32kΩ ±1%	
R 5307	RME1078	R, Metal 1/4W 3.32kΩ ±1%	
R 5308	RME1078	R, Metal 1/4W 3.32kΩ ±1%	
R 5309	RME1078	R, Metal 1/4W 3.32kΩ ±1%	
R 5310	RME1081	R, Metal 1/4W 5.62kΩ ±1%	
R 5311	RME1088	R, Metal 1/4W 22.1kΩ ±1%	
R 5312	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5313	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5314	RME1064	R, Metal 1/4W 221Ω ±1%	
R 5315	RCE0759	R, Carbon 1/4W 150Ω ±5%	
R 5316	RCE0758	R, Carbon 1/4W 120Ω ±5%	
R 5317	RME1070	R, Metal 1/4W 681Ω ±1%	
R 5318	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 5319	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 5320	RME1077	R, Metal 1/4W 2.67kΩ ±1%	
R 5321	RME1077	R, Metal 1/4W 2.67kΩ ±1%	
R 5323	RCE0778	R, Carbon 1/4W 5.6kΩ ±5%	
R 5324	RCE0778	R, Carbon 1/4W 5.6kΩ ±5%	
R 5325	RCE0745	R, Carbon 1/4W 10Ω ±5%	
R 5326	RCE0745	R, Carbon 1/4W 10Ω ±5%	
R 5329	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	

27 LED CIRCUIT

Symbol	Part Code	Description	Remarks
R 5330	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 5331	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 5332	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5334	RME1072	R, Metal 1/4W 1.00kΩ ±1%	
R 5335	RCE0768	R, Carbon 1/4W 820Ω ±5%	
R 5336	RCE0768	R, Carbon 1/4W 820Ω ±5%	
R 5337	RCE0778	R, Carbon 1/4W 5.6kΩ ±5%	
R 5338	RCE0767	R, Carbon 1/4W 680Ω ±5%	
R 5339	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5340	RCE0767	R, Carbon 1/4W 680Ω ±5%	
R 5341	RCE0759	R, Carbon 1/4W 150Ω ±5%	
R 5342	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5343	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5344	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5345	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5346	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5347	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5348	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 5349	RCE0773	R, Carbon 1/4W 330Ω ±5%	
R 5350	RME1074	R, Metal 1/4W 1.50kΩ ±1%	
R 5351	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 6001	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 6002	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 6016	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 6017	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 6018	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 6019	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 6020	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 6021	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 6022	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 6023	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 6024	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 6025	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
RV 5001	RNE0050	VR, Metal EVN39C00YB52 (500)	
RV 5004	RNE0053	VR, Metal EVN39C00YB24 (20K)	
RV 5005	RNE0051	VR, Metal EVN39C00YB14 (10K)	
RV 5300	RNE0051	VR, Metal EVN39C00YB14 (10K)	
RV 5301	RNE0050	VR, Metal EVN39C00YB52 (500)	
RV 5302	RNE0058	VR, Metal EVN39C00YB13 (1K)	
S 6000	8402062C	SW, Push SUJ80A	
S 6001	8402062D	SW, Push SUJ70A	
S 6002	SSP0441	SW, Push SUJ1	
S 6003	SSP0441	SW, Push SUJ1	
S 6004	SSP0441	SW, Push SUJ1	
S 6005	SSP0441	SW, Push SUJ1	
S 6006	SSP0441	SW, Push SUJ1	
S 6007	SSP0441	SW, Push SUJ1	
TP 5300	8391000	Test Point 1PS-1136	
TP 5301	8391000	Test Point 1PS-1136	
TP 5302	8391000	Test Point 1PS-1136	
TP 5303	8391000	Test Point 1PS-1136	

Symbol	Part Code	Description	Remarks
D 6008	HDS0407	Diode SR503D (red)	
D 6009	HDS0407	Diode SR503D (red)	
D 6010	HDS0407	Diode SR503D (red)	
D 6011	HDS0407	Diode SR503D (red)	
D 6012	HDS0407	Diode SR503D (red)	
D 6013	HDS0407	Diode SR503D (red)	
D 6015	HDS0405	Diode SG203DA (green)	
D 6016	HDS0405	Diode SG203DA (green)	
D 6017	HDS0405	Diode SG203DA (green)	
D 6018	HDS0483	Diode SLP-540D	
D 6019	HDS0483	Diode SLP-540D	
D 6020	HDS0483	Diode SLP-540D	
D 6021	HDS0483	Diode SLP-540D	
D 6022	HDS0483	Diode SLP-540D	
D 6023	HDL0028	Diode LA301VL	
D 6024	HDL0028	Diode LA301VL	
D 6025	HDL0028	Diode LA301VL	
D 6026	HDL0028	Diode LA301VL	
R 6003	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 6004	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 6005	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 6007	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 6008	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 6009	RCE0759	R, Carbon 1/4W 150Ω ±5%	
R 6010	RCE0759	R, Carbon 1/4W 150Ω ±5%	
R 6011	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 6012	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 6013	RCE0763	R, Carbon 1/4W 330Ω ±5%	
R 6015	RCE0759	R, Carbon 1/4W 150Ω ±5%	
S 6008	SSL0068	Lever SW SLE-823	
JBX0327		Connector 1-163740-8 (19P)	

28 SW CONT CIRCUIT

Symbol	Part Code	Description	Remarks
C 6040	CES0028	C, AL Elyc 10V 47μF ±20%	
C 6041	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 6042	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 6043	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 6044	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
IC 1	IDS0295	IC SN74LS244N	
IC 2	IDS0295	IC SN74LS244N	
IC 3	IDS0295	IC SN74LS244N	
IC 4	IDS0295	IC SN74LS244N	
P 6040	JBB0024	Connector B15B-XH-A	
P 6041	JBB0022	Connector B6B-XH-A	
P 6042	JBB0022	Connector B6B-XH-A	
P 6043	JBB0022	Connector B6B-XH-A	
P 6044	JBB0022	Connector B6B-XH-A	
P 6045	JBB0021	Connector B3B-XH-A	
P 6046	JBB0022	Connector B6B-XH-A	
P 6047	JBB0022	Connector B6B-XH-A	
R 6060	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6061	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6062	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6063	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6064	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6065	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6066	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6067	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6068	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6069	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6070	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6071	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6072	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6073	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6074	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6075	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6076	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6077	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6078	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6079	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6080	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6081	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6082	RCR4407	R, Carbon 1/8W 4.7kΩ ±5%	
R 6083	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6084	RCR4398	R, Carbon 1/8W 680Ω ±5%	
R 6085	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6086	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6087	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6088	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6089	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6090	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6091	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6092	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6093	RCR4413	R, Carbon 1/8W 22kΩ ±5%	
R 6094	RCR4413	R, Carbon 1/8W 22kΩ ±5%	

Volt/div & time/div

Symbol	Part Code	Description	Remarks
P 6050	JBB0022	Connector B6B-XH-A	
P 6051	JBB0021	Connector B3B-XH-A	
P 6052	JBB0021	Connector B3B-XH-A	
P 6061	JBB0022	Connector B6B-XH-A	

29 POWER SUPPLY 2

Symbol	Part Code	Description	Remarks
D 1121	HDM0130	Diode M4C-32-11	
D 1122	HDM0130	Diode M4C-32-11	
D 1123	HDM0130	Diode M4C-32-11	
D 1124	HDM0130	Diode M4C-32-11	
C 1141	CES0028	C, AL Elyc 10V 47μF ±20%	
C 1142	CEC0175	C, AL Elyc 25V 10μF	
C 1151	CEK0094	C, AL Elyc 50V 2200μF ±20%	
C 1152	CES0033	C, AL Elyc 25V 100μF ±20%	
C 1153	CQA0111	C, Plastic 50V 0.33μF ±10%	
C 1161	CEK0094	C, AL Elyc 50V 2200μF ±20%	
C 1162	CES0033	C, AL Elyc 25V 100μF ±20%	
C 1163	CQA0111	C, Plastic 50V 0.33μF ±10%	
C 1164	CES0033	C, AL Elyc 25V 100μF ±20%	
C 1165	CQA0111	C, Plastic 50V 0.33μF ±10%	
C 1170	CEK0093	C, AL Elyc 25V 3300μF ±20%	
C 1171	CEK0093	C, AL Elyc 25V 3300μF ±20%	
C 1172	CES0033	C, AL Elyc 25V 100μF ±20%	
C 1173	CQA0111	C, Plastic 50V 0.33μF ±10%	
P 1140	JBX0703	Connector 1-171825-0	
P 1146	JBB0021	Connector B3B-XH-A	
R 1151	RMR3791	R, Metal 4W 22Ω ±5%	
	8391000	Test Point IPS-1136 DH Pin	5 pcs

30-31 V SWITCHING CIRCUIT

Symbol	Part Code	Description	Remarks
C 8001	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 8002	CCC0997	C, Ceramic 50V 3 pF ±0.25%	
C 8003	CCC1025	C, Ceramic 50V 100 pF ±10%	
C 8004	CEX0563	C, AL Elyc BP 16V 10μF ±20%	
C 8005	CCC1002	C, Ceramic 50V 10 pF ±0.5%	
C 8006	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 8007	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 8008	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 8009	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 8010	CCC1160	C, Ceramic 50V 330 pF ±10%	
C 8011	CCC1160	C, Ceramic 50V 330 pF ±10%	
C 8017	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 8018	CES0032	C, AL Elyc 25V 47μF ±20%	
C 8019	CES0036	C, AL Elyc 25V 22μF ±20%	
C 8020	CCC0996	C, Ceramic 50V 2 pF ±0.25%	
C 8021	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 8022	CES0036	C, AL Elyc 25V 22μF ±20%	
C 8023	CES0036	C, AL Elyc 25V 22μF ±20%	
C 8024	CES0028	C, AL Elyc 10V 47μF ±20%	
C 8025	CCC1030	C, Ceramic 50V 10000 pF +80 -20%	
C 8026	CCC1025	C, Ceramic 50V 100 pF ±10%	
C 8028	CES0131	C, AL Elyc 16V 10μF ±20%	
D 8001	HDS0437	Diode 1SS133	
D 8002	HDS0437	Diode 1SS133	
D 8003	HDS0437	Diode 1SS133	
D 8004	HDH0024	Diode HZ3B	
TR 8001	HTA0099	Transistor 2SA781K	
TR 8002	HTA0099	Transistor 2SA781K	
TR 8003	HTC0338	Transistor 2SC1906	
TR 8004	HTC0338	Transistor 2SC1906	
TR 8005	HTA0099	Transistor 2SA781K	
TR 8006	HTA0099	Transistor 2SA781K	
TR 8007	HTA0099	Transistor 2SA781K	
TR 8008	HTA0099	Transistor 2SA781K	
TR 8009	HTA0099	Transistor 2SA781K	
TR 8010	HTA0099	Transistor 2SA781K	
TR 8011	HTA0099	Transistor 2SA781K	
TR 8012	HTA0099	Transistor 2SA781K	
TR 8013	HTA0099	Transistor 2SA781K	
TR 8014	HTA0099	Transistor 2SA781K	
TR 8015	HTC0148	Transistor 2SC458C	
TR 8016	HTA0099	Transistor 2SA781K	
TR 8017	HTC0168	Transistor 2SC535C	
TR 8018	HTA0099	Transistor 2SA781K	
TR 8019	HTC0338	Transistor 2SC1906	
TR 8020	HTC0338	Transistor 2SC1906	
IC 8000	IDH0403	IC HD74S00P	
L 8003	TLE0136	Coil ELE-V 221KA	
P 211	JBB0021	Connector B3B-XH-A	
P 311	JBB0021	Connector B3B-XH-A	
P 8001	JBB0023	Connector B8B-XH-A	
P 8002	JBB0024	Connector B15B-XH-A	
P 8003	JBB0021	Connector B3B-XH-A	
P 8004	JBB0021	Connector B3B-XH-A	

Symbol	Part Code	Description	Remarks
P 8005	JBB0021	Connector B3B-XH-A	
P 8008	JBB0022	Connector B6B-XH-A	
P 8010	JBB0021	Connector B3B-XH-A	
R 8001	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 8002	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 8003	RCE0775	R, Carbon 1/4W 3.3kΩ ±5%	
R 8004	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 8005	RCE0772	R, Carbon 1/4W 1.8kΩ ±5%	
R 8006	RCE0772	R, Carbon 1/4W 1.8kΩ ±5%	
R 8007	RME1063	R, Metal 1/4W 182Ω ±1%	
R 8008	RME1063	R, Metal 1/4W 182Ω ±1%	
R 8009	RCE0766	R, Carbon 1/4W 560Ω ±5%	
R 8010	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 8011	RCE0782	R, Carbon 1/4W 12kΩ ±5%	
R 8012	RME1064	R, Metal 1/4W 221Ω ±1%	
R 8013	RME1064	R, Metal 1/4W 221Ω ±1%	
R 8014	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 8015	RCE0768	R, Carbon 1/4W 820Ω ±5%	
R 8016	RCE0768	R, Carbon 1/4W 820Ω ±5%	
R 8017	RCE1107	R, Metal 1/4W 86.6Ω ±1%	
R 8018	RME1107	R, Metal 1/4W 86.6Ω ±1%	
R 8019	RCE0761	R, Carbon 1/4W 220Ω ±5%	
R 8020	RME1060	R, Metal 1/4W 100Ω ±1%	
R 8021	RME1060	R, Metal 1/4W 100Ω ±1%	
R 8022	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 8023	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 8024	RCE0769	R, Carbon 1/4W 680Ω ±5%	
R 8025	RCE0767	R, Carbon 1/4W 680Ω ±5%	
R 8026	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 8027	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 8028	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 8029	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 8030	RME1060	R, Metal 1/4W 100Ω ±1%	
R 8031	RME1060	R, Metal 1/4W 100Ω ±1%	
R 8032	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 8033	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 8034	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 8035	RCE0767	R, Carbon 1/4W 680Ω ±5%	
R 8036	RCE0767	R, Carbon 1/4W 680Ω ±5%	
R 8037	RME1107	R, Metal 1/4W 86.6Ω ±1%	
R 8038	RME1107	R, Metal 1/4W 86.6Ω ±1%	
R 8039	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 8040	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 8041	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 8042	RCE0773	R, Carbon 1/4W 2.2kΩ ±5%	
R 8043	RME1117	R, Metal 1/4W 750Ω ±1%	
R 8044	RME1117	R, Metal 1/4W 750Ω ±1%	
R 8045	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 8046	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 8047	RCE0757	R, Carbon 1/4W 100Ω ±5%	
R 8048	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 8049	RCE0775	R, Carbon 1/4W 3.3kΩ ±5%	
R 8050	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 8051	RCE0771	R, Carbon 1/4W 1.5kΩ ±5%	
R 8052	RCE0777	R, Carbon 1/4W 4.7kΩ ±5%	
R 8053	RME1060	R, Metal 1/4W 100Ω ±1%	
R 8054	RME1071	R, Metal 1/4W 825Ω ±1%	
R 8055	RCE0749	R, Carbon 1/4W 22Ω ±5%	
R 8056	RCE0771	R, Carbon 1/4W 1.5kΩ ±5%	
R 8057	RCE0753	R, Carbon 1/4W 47Ω ±5%	
R 8058	RCE0745	R, Carbon 1/4W 10Ω ±5%	
R 8060	RCE0781	R, Carbon 1/4W 10kΩ ±5%	
R 8061	RCE0781	R, Carbon 1/4W 10kΩ ±5%	
R 8061A	RCE0767	R, Carbon 1/4W 680Ω ±5%	
R 8063	RCE0767	R, Carbon 1/4W 680Ω ±5%	
R 8064	RCE0767	R, Carbon 1/4W 680Ω ±5%	
R 8065	RCE0751	R, Carbon 1/4W 33Ω ±5%	
R 8066	RCE0775	R, Carbon 1/4W 3.3kΩ ±5%	

32 TRIG COUPLING & STORAGE V POSI

Symbol	Part Code	Description	Remarks
RV 5330	RDE0003	RV, Carbon EVH-YK3325B14	
RV 5331	RDE0003	RV, Carbon EVH-YK3325B14	
S 5900	8376780A	SW Push SPJ222N Selflock	
P 5900	JBB0021	Connector B3B-XH-A	
P 5901	JBB0023	Connector B8B-XH-A	
P 5902	JBB0021	Connector B3B-XH-A	
	4049188-B	Terminal B5	

33 ALIASING SENSOR

Symbol	Part Code	Description	Remarks
	IDS0377	IC SN74S161N	
	IDH0429	IC HD74S74P	
	IDS0367	IC SN74S08N	
	IDH0406	IC HD74S04	
	IDH0402	IC HD74S00	
	IDH0820	IC HD74LS123P	
R 5030	RCE0760	R, Carbon 1/4W 180Ω ±5%	
R 5035	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5037	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5038	RME1100	R, Metal 1/4W 221kΩ ±1%	
R 5814	RCE0770	R, Carbon 1/4W 1.2kΩ ±5%	
R 5825	RCE0764	R, Carbon 1/4W 390Ω ±5%	
R 5825B	RCE0760	R, Carbon 1/4W 180Ω ±5%	
R 5825C	RCE0771	R, Carbon 1/4W 1.5kΩ ±5%	
R 5826	RCE0774	R, Carbon 1/4W 2.7kΩ ±5%	
R 5827	RCE0767	R, Carbon 1/4W 680Ω ±5%	
R 5831	RCE0776	R, Carbon 1/4W 3.9kΩ ±5%	
C 5019	CCC1025	C, Ceramic 50V 100 pF ±10%	
C 5020	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5021	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5022	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5023	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5025	CQA0097	C, Plastic 50V 0.01μF ±10%	
C 5026	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5027	CCC1030	C, Ceramic 50V 10000 pF +80 −20%	
C 5831	CES0028	C, AL Elyc 10V 47μF ±20%	
P 5550	JBB0023	Connector B8B-XH-A	
P 5801	JBB0021	Connector B3B-XH-A	
P 5802	ETP0002	Pin 171255-1	
P 5803	ETP0002	Pin 171255-1	
TP 5802	HTC0168	Transistor 2SC535C TZ	
TR 5803	HTC0168	Transistor 2SC535C TZ	
L 5827	TLE0120	Coil ELE-V 6R8 KA	

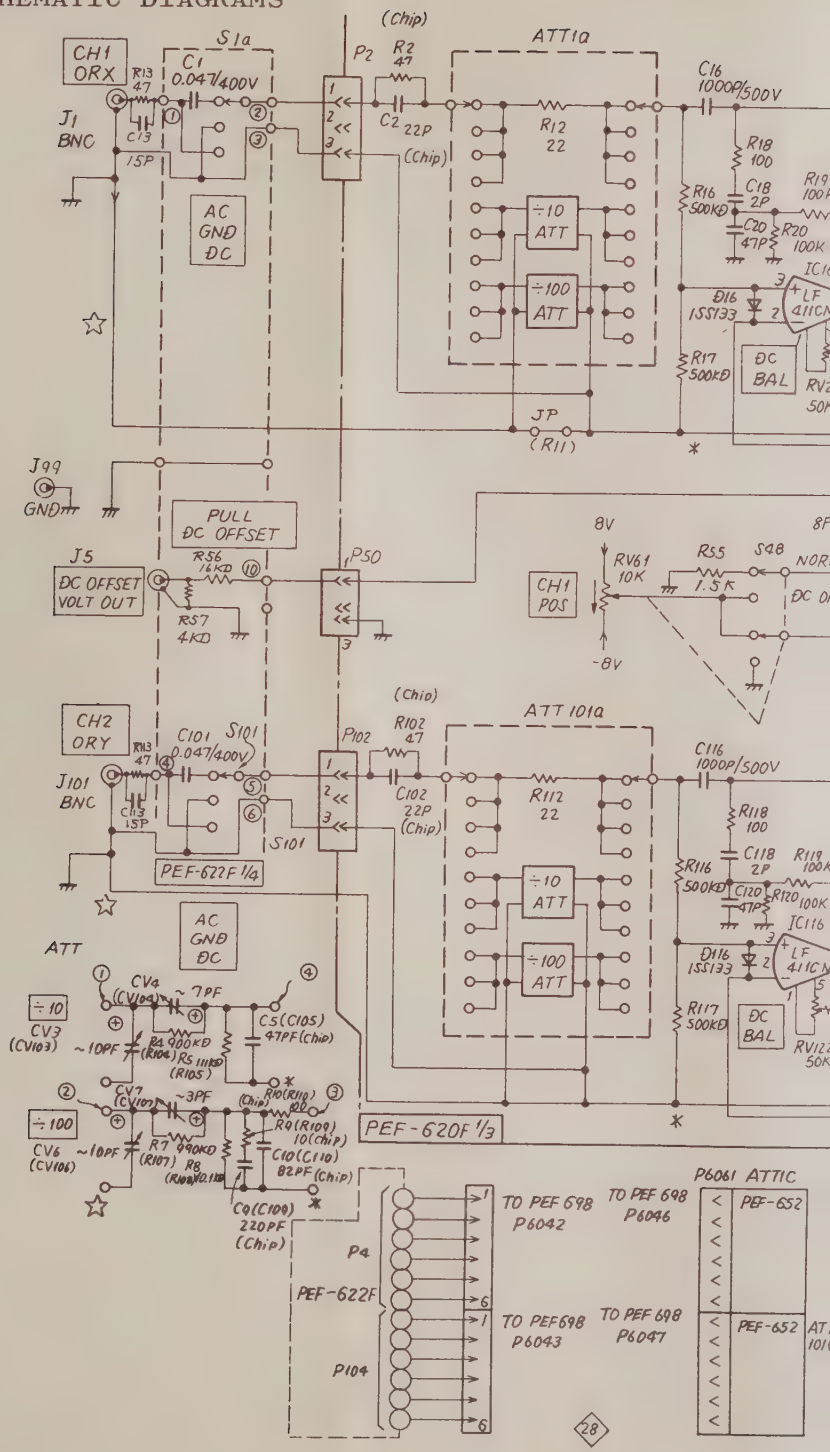
34 H SWITCHING CIRCUIT

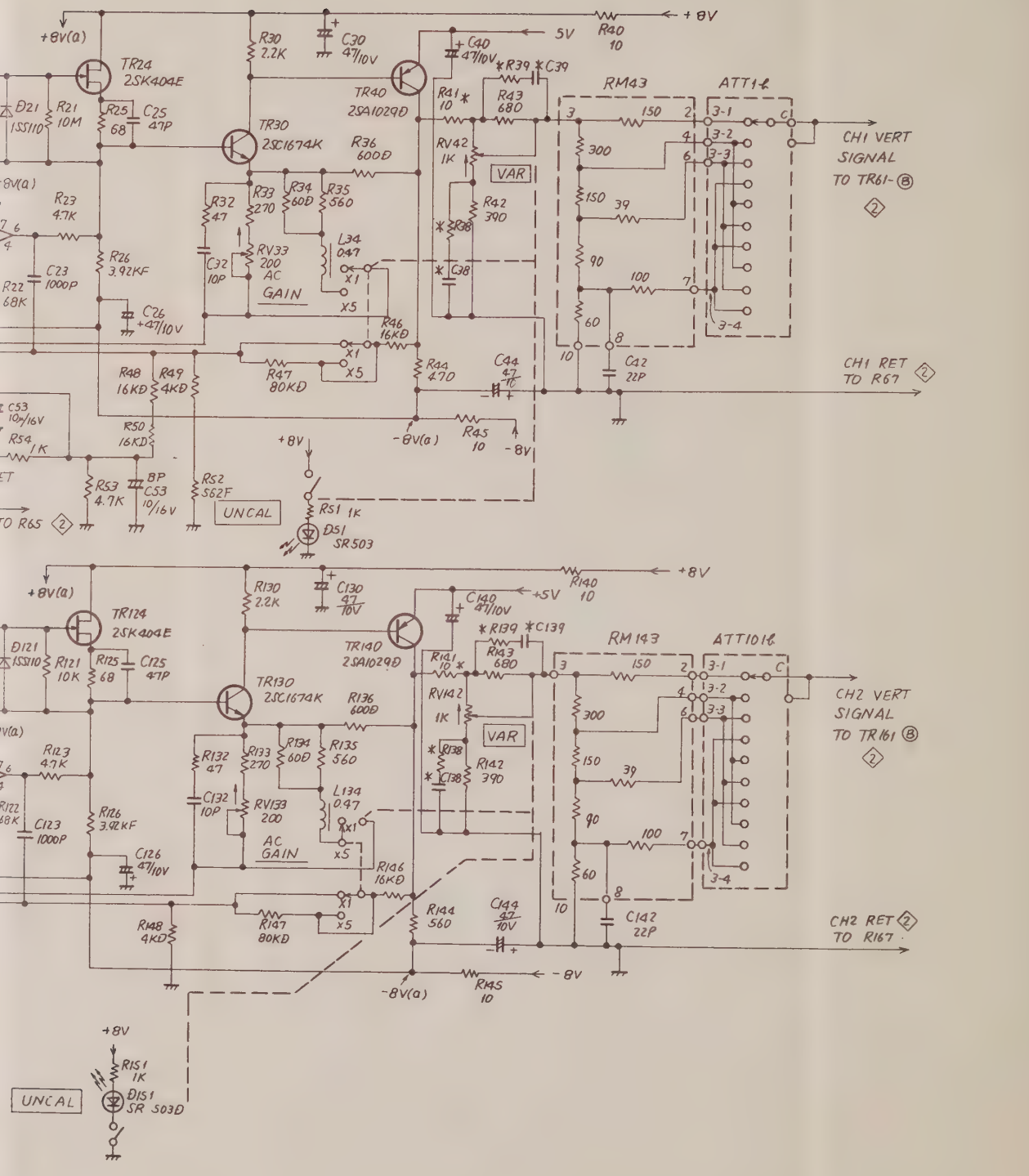
Symbol	Part Code	Description	Remarks
C 5016	CCC1030	C, Ceramic 50V 10000pF +80 −20%	
C 5020	CES0032	C, AL Elyc 25V 47μF ±20%	
C 5041	CCC1036	C, Ceramic 50V 22000pF +80 −20%	
C 8012	CES0032	C, AL Elyc 25V 47μF ±20%	
C 8013	CES0032	C, AL Elyc 25V 47μF ±20%	
C 8014	CCC1030	C, Ceramic 50V 10000pF +80 −20%	
C 8015	CCC1030	C, Ceramic 50V 10000pF +80 −20%	
C 8016	CCC1030	C, Ceramic 50V 10000pF +80 −20%	
D 5041	HDS0108	Diode 1S2075K	
TR 5004	HTC0148	Transistor 2SC458C	
	IDH0802	IC HD14053BP (MC14053BCP)	
R 5010	RME1080	R, Metal 1/4W 4.75kΩ ±1%	
R 5011	RME1082	R, Metal 1/4W 4.75kΩ ±1%	
R 5026	RCE0781	R, Carbon 1/4W 10kΩ ±5%	
R 5027	RCE0781	R, Carbon 1/4W 10kΩ ±5%	
R 5028	RCE0781	R, Carbon 1/4W 10kΩ ±5%	
R 5029	RCE0765	R, Carbon 1/4W 470Ω ±5%	
R 5038	RCE0769	R, Carbon 1/4W 1kΩ ±5%	
R 5044	RCE0765	R, Carbon 1/4W 470Ω ±5%	
RL 5041	SRR0055	Relay NR-HD-5V (AE-5349)	
RV 5002	RNE0067	VR, Metal EVN49C00YB13 (1K)	
RV 5003	RNE0068	VR, Metal EVN49C00YB14 (10K)	
P 5307	JBB0021	Connector B3B-XH-A	
P 8006	JBB0026	Connector B10B-XH-A	
P 8007	JBB0023	Connector B8B-XH-A	

Panel & others

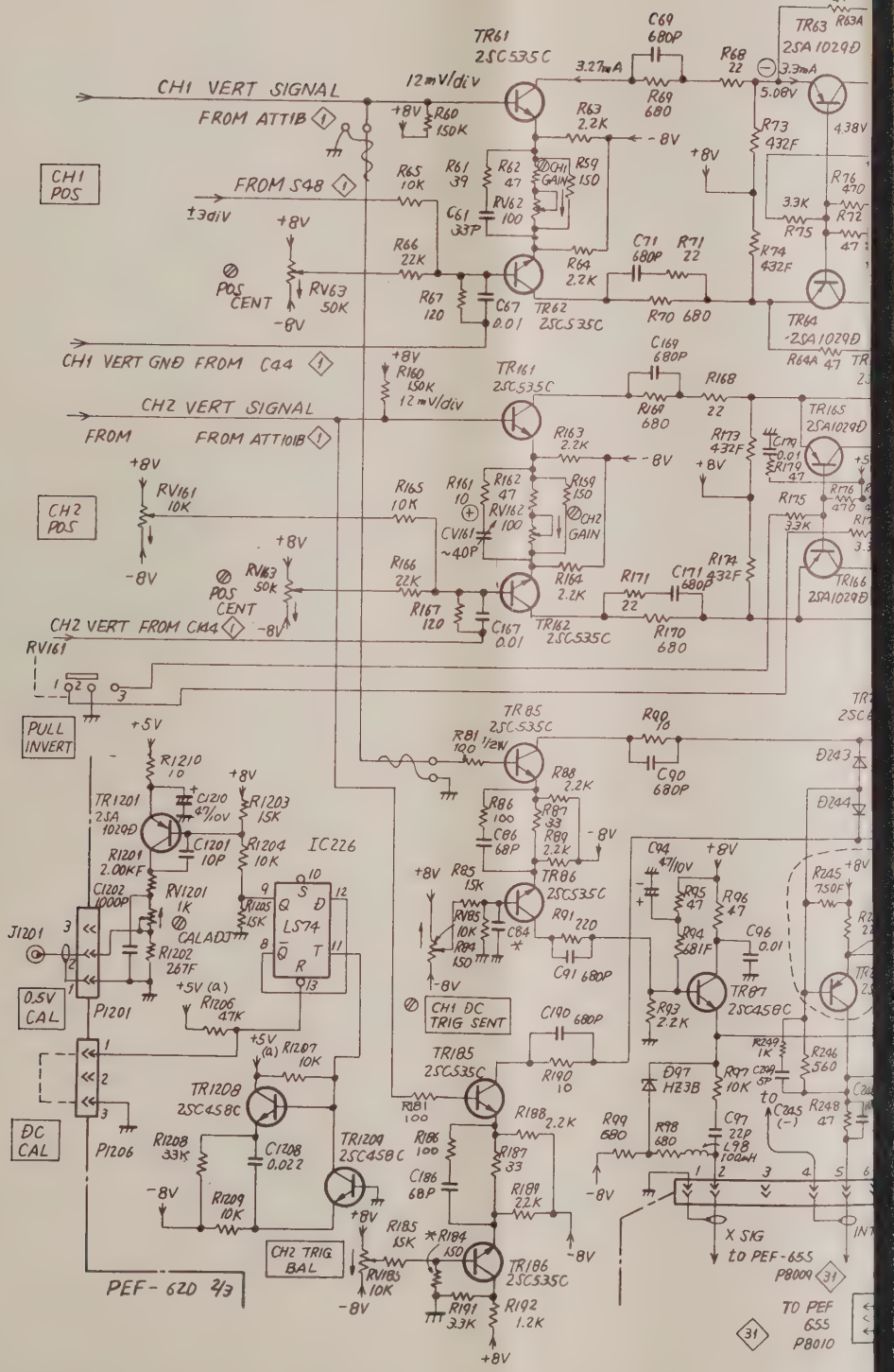
Symbol	Part Code	Description	Remarks
IC 1111	ILH0109	IC HA17808P	
IC 1131	ILH0108	IC HA17805P	
IC 1141	ILH0108	IC HA17805P	
IC 1151	8338426B	IC HA17812P	
IC 1161	ILM0327	IC μPC7912H	
IC 1162	ILM0327	IC μPC7912H	
IC 1171	ILS0069	IC SI-3052P	
TR 1102	HTC0671	Transistor 2SC1505L	
D 1131	HDM0048	Diode M4C-6	
D 1132	HDM0048	Diode M4C-6	
D 1133	HDM0048	Diode M4C-6	
D 1134	HDM0048	Diode M4C-6	
J 403	JHB0088	Connector BNC071	
J 7800	JHB0088	Connector BNC071	
J 7801	JHB0088	Connector BNC071	
J 7802	JHB0088	Connector BNC071	
PS 1101	8408200	Power unit ES-10-51HE	
	HYS0001	Washer for Transistor SK-16B	6 pcs
	HYY0013	Washer for Transistor YC-10B	6 pcs
	EFH0060	Fuse Holder F-7175	2 pcs
F 1102	EFG0330	Fuse 1A 250V	
F 1103	EFG0537	Fuse 3A 250V	
	4049188E	Terminal B5	
	8402043	Connector Assy for Coil	
	3184293	Connector Assy for VC-6041	
	8410362A	Connector Assy for VC-6041	
	3184296A	Connector Assy for VC-6041	2 pcs
	3184296B	Connector Assy for VC-6041	
	3184297	Fan D12A4-5	

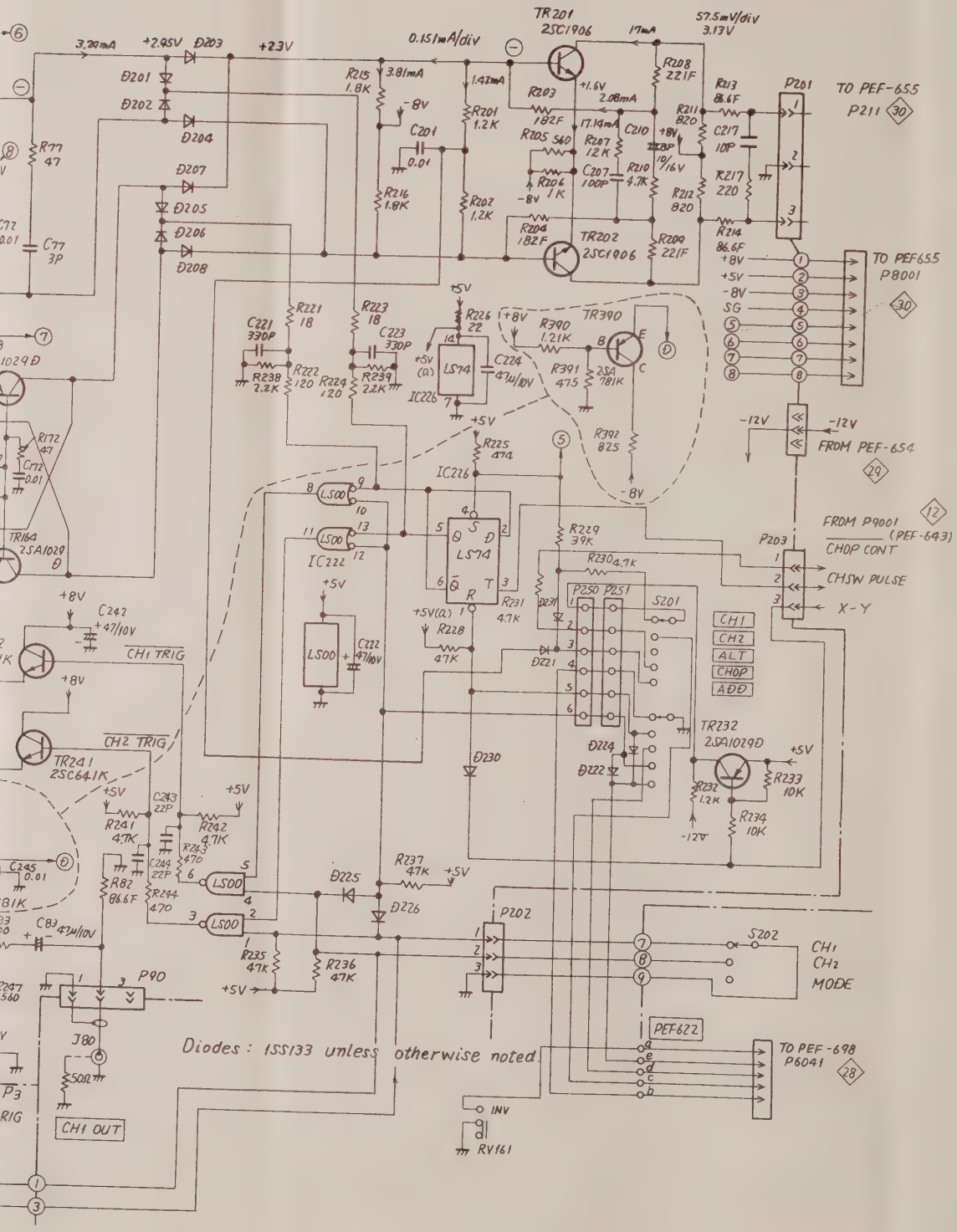
9. SCHEMATIC DIAGRAMS



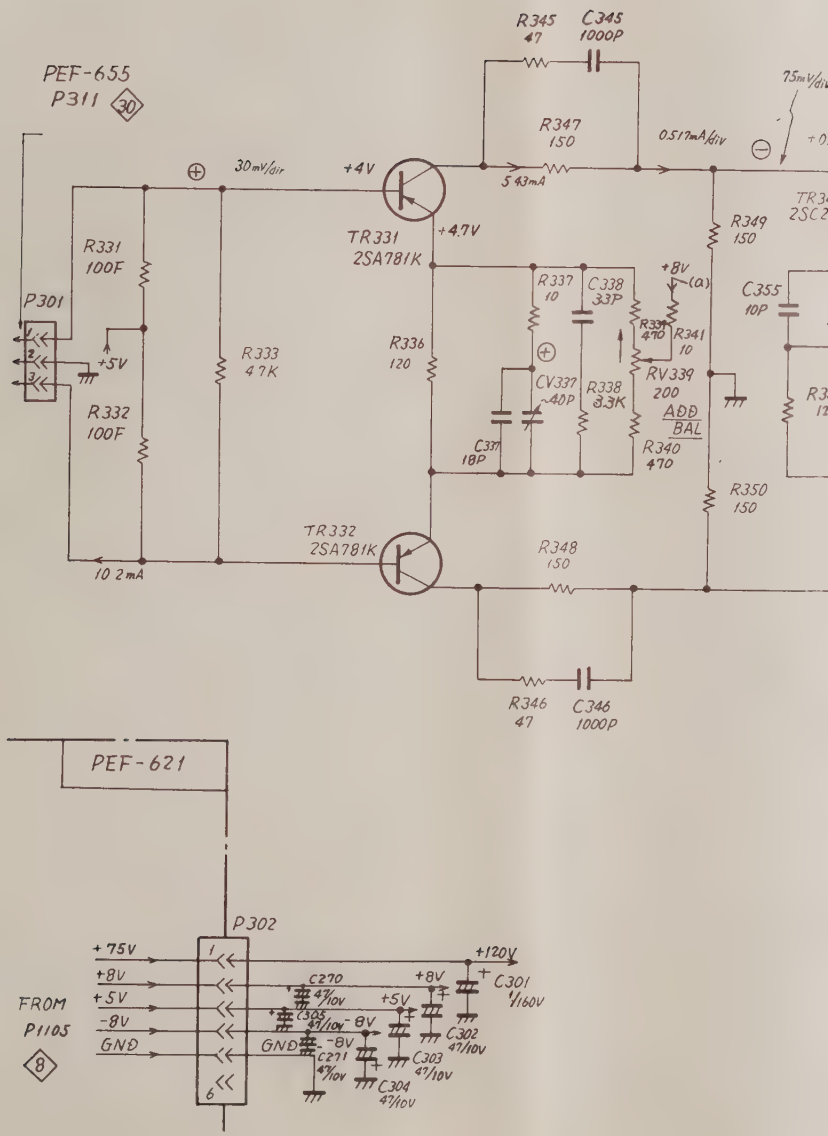


◇1 INPUT AMP (PEF-620F)

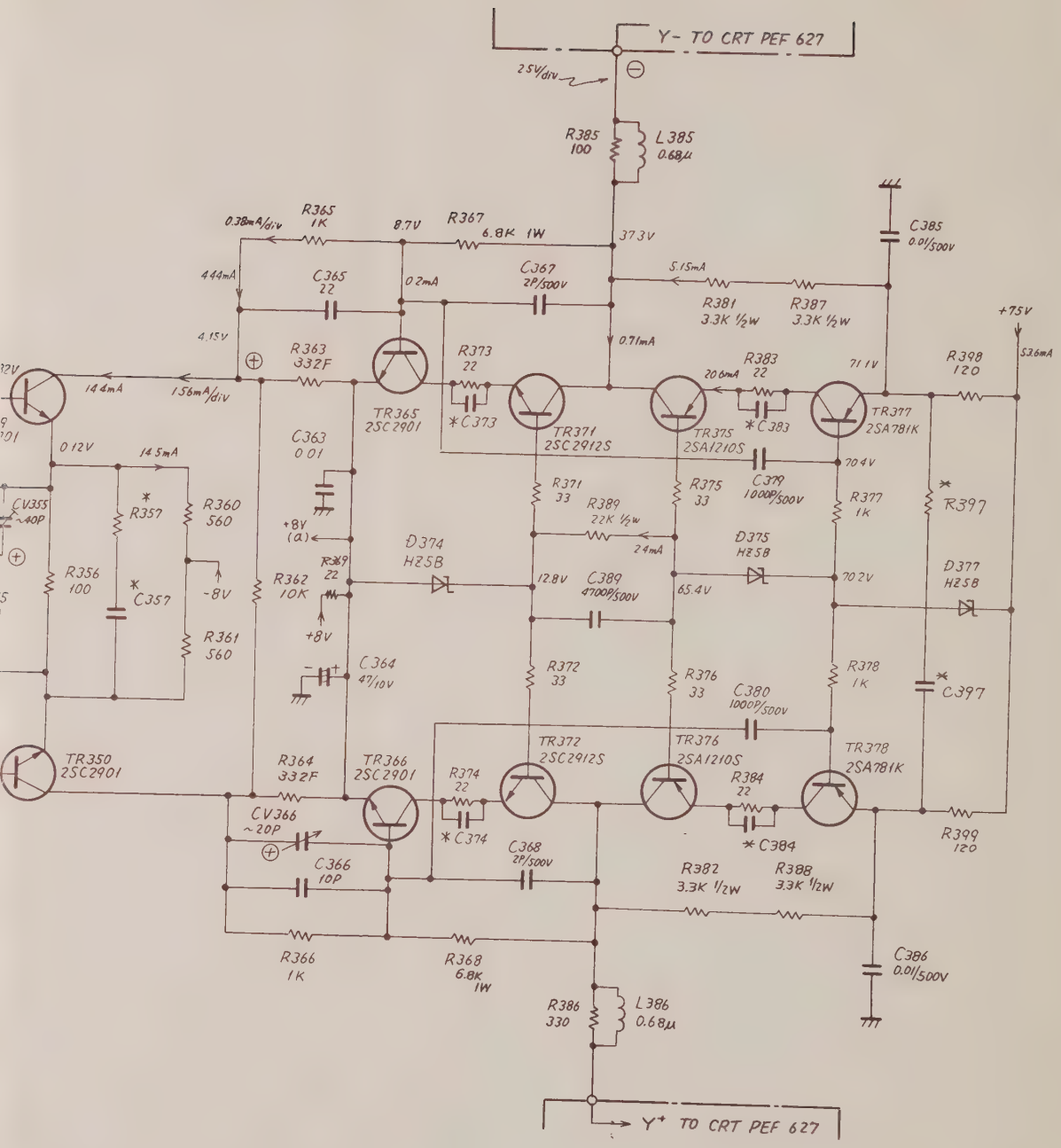

CH1 VERT SIGNAL
FROM ATT1B
CH1 POS
FROM S48
±3div
POS CENT
CH1 VERT GND FROM C44
CH2 VERT SIGNAL
FROM ATT101B
CH2 POS
CH2 VERT FROM C144
RV161
PULL INVERT
0.5V CAL
DC CAL
P1201
P1206
J1201
CAL ADJ
IC226
LS74
CH1 DC TRIG SENT
CH2 TRIG BAL
X SIG
to PEF-655
P8009
TO PEF 655 P8010
PEF-620 2/3
TR61 2SC535C
TR62 2SC535C
TR63 2SA1029D
TR64 2SA1029D
TR161 2SC535C
TR162 2SC535C
TR165 2SA1029D
TR166 2SA1029D
TR85 2SC535C
TR86 2SC535C
TR87 2SC458C
TR185 2SC535C
TR186 2SC535C
TR1201 2SA1029D
TR1208 2SC458C
TR1209 2SC458C
CH1 GAIN
CH2 GAIN
+8V
-8V
+5V
12mV/div
3.27mA
3.3mA
5.08V
4.38V



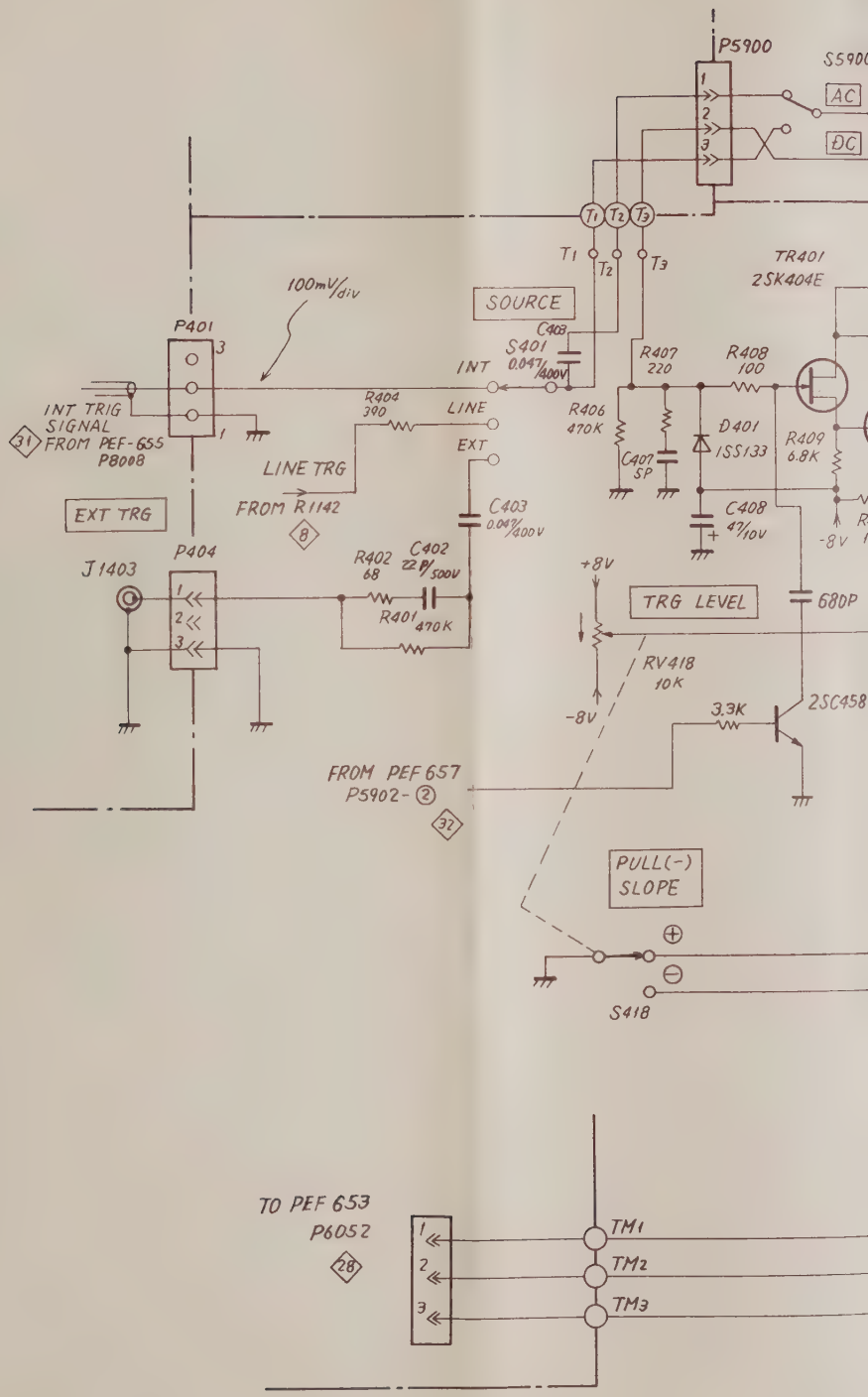
2 VERT PREAMP, TRIG PICKOFF & CH SW MULTI (PEF-620F)

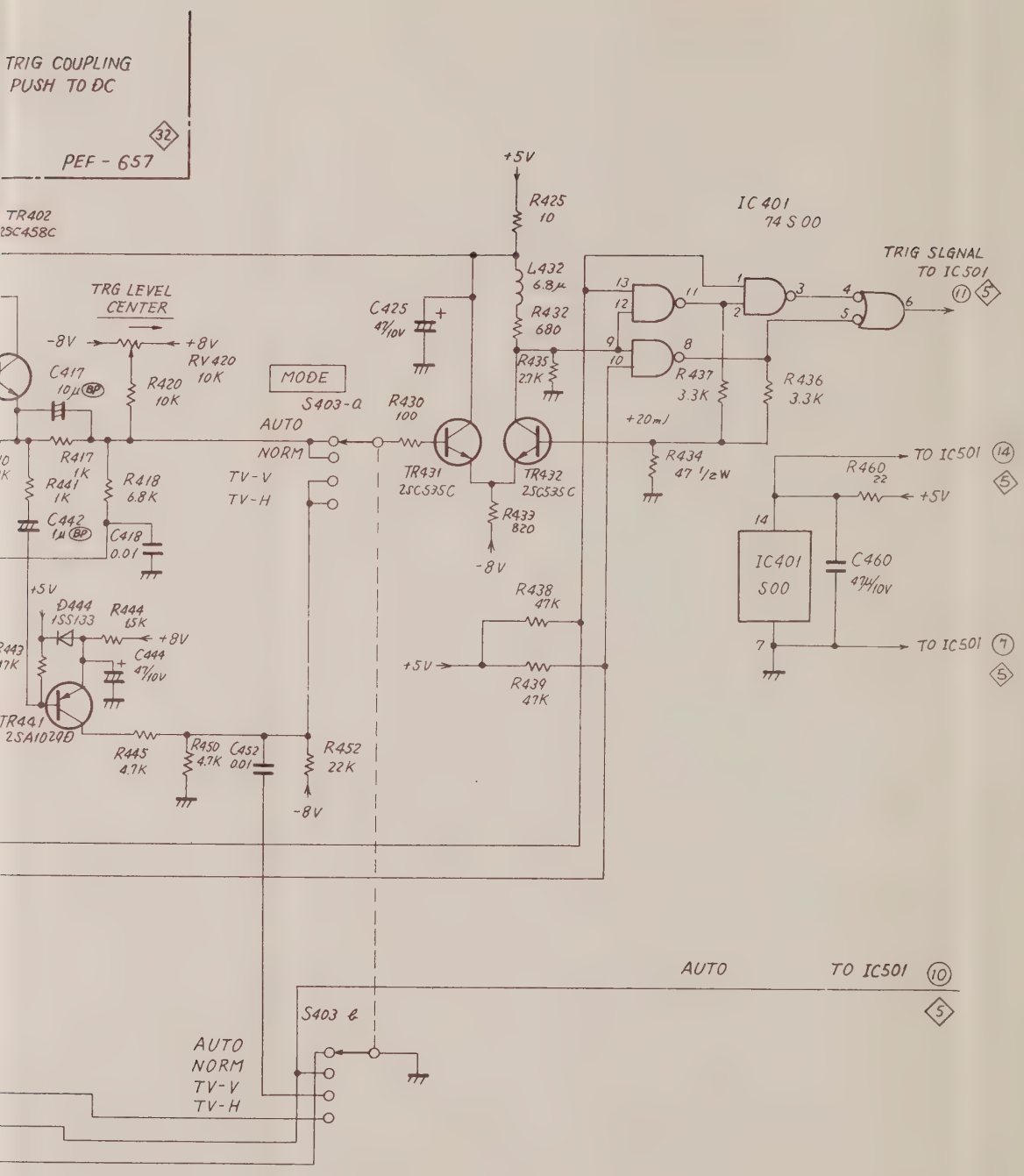

PEF-655
P311
30
R345
47
C345
1000P
R347
150
75mV/div
0.517mA/div
30mV/div
+4V
5.43mA
TR331
2SA781K
+4.7V
R349
150
R331
100F
P301
+5V
R333
4.7K
R332
100F
R336
120
R337
10
C338
33P
+8V
(a)
C355
10P
R339
470
R341
10
CV337
~40P
R338
3.3K
RV339
200
ADD
BAL
C337
18P
R340
470
R350
150
TR332
2SA781K
R348
150
10.2mA
R346
47
C346
1000P

PEF-621
P302
+75V
+8V
+5V
-8V
GND
FROM
P1105
8
1
6
+120V
C301
1/160V
C270
47/10V
C305
47/10V
C271
47/10V
C302
47/10V
C303
47/10V
C304
47/10V

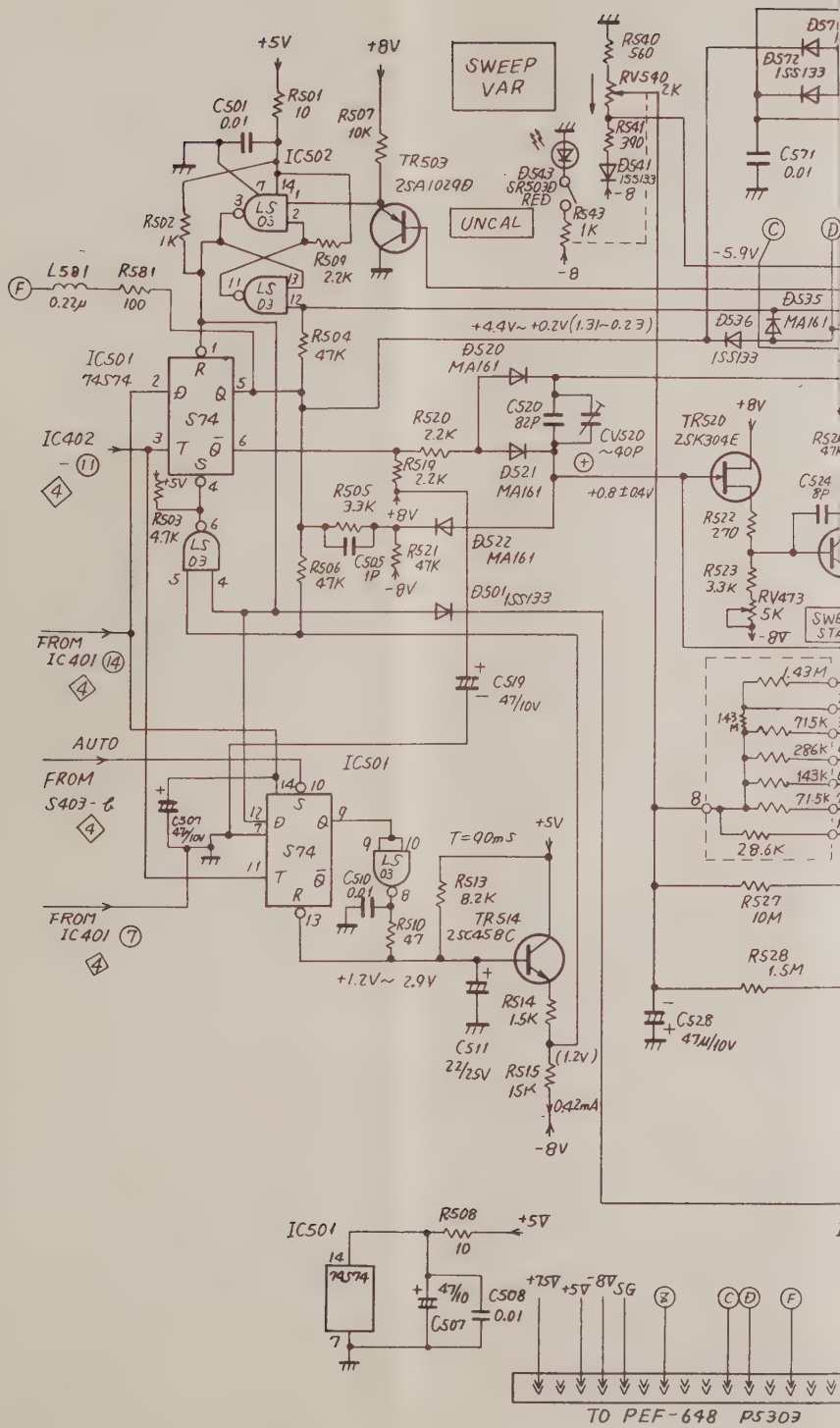


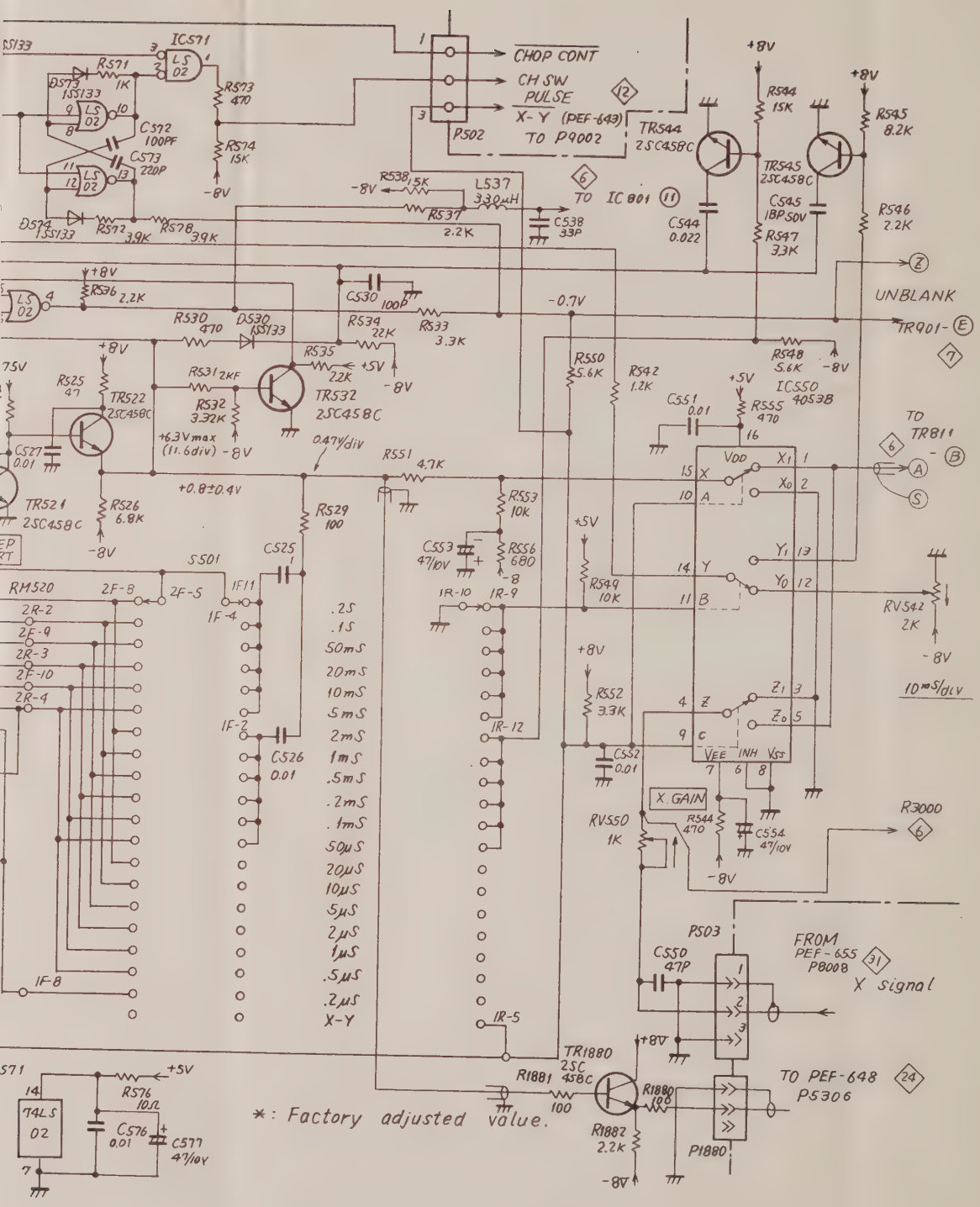
3 V OUT AMP (PEF-620F)


P5900
AC
DC
T1
T2
T3
TR401
2SK404E
100mV/div
SOURCE
P401
C403
S401
0.047/400V
INT
R407
220
R408
100
INT TRIG
SIGNAL
FROM PEF-655
P8008
R404
390
LINE
R406
470K
D401
1SS133
R409
6.8K
EXT
C407
SP
LINE TRG
FROM R1142
C403
0.047/400V
C408
47/10V
EXT TRG
P404
J1403
R402
68
C402
22P/500V
+8V
TRG LEVEL
680P
R401
470K
RV418
10K
-8V
3.3K
2SC458
FROM PEF 657
P5902-②
PULL(-)
SLOPE
S418
TO PEF 653
P6052
TM1
TM2
TM3

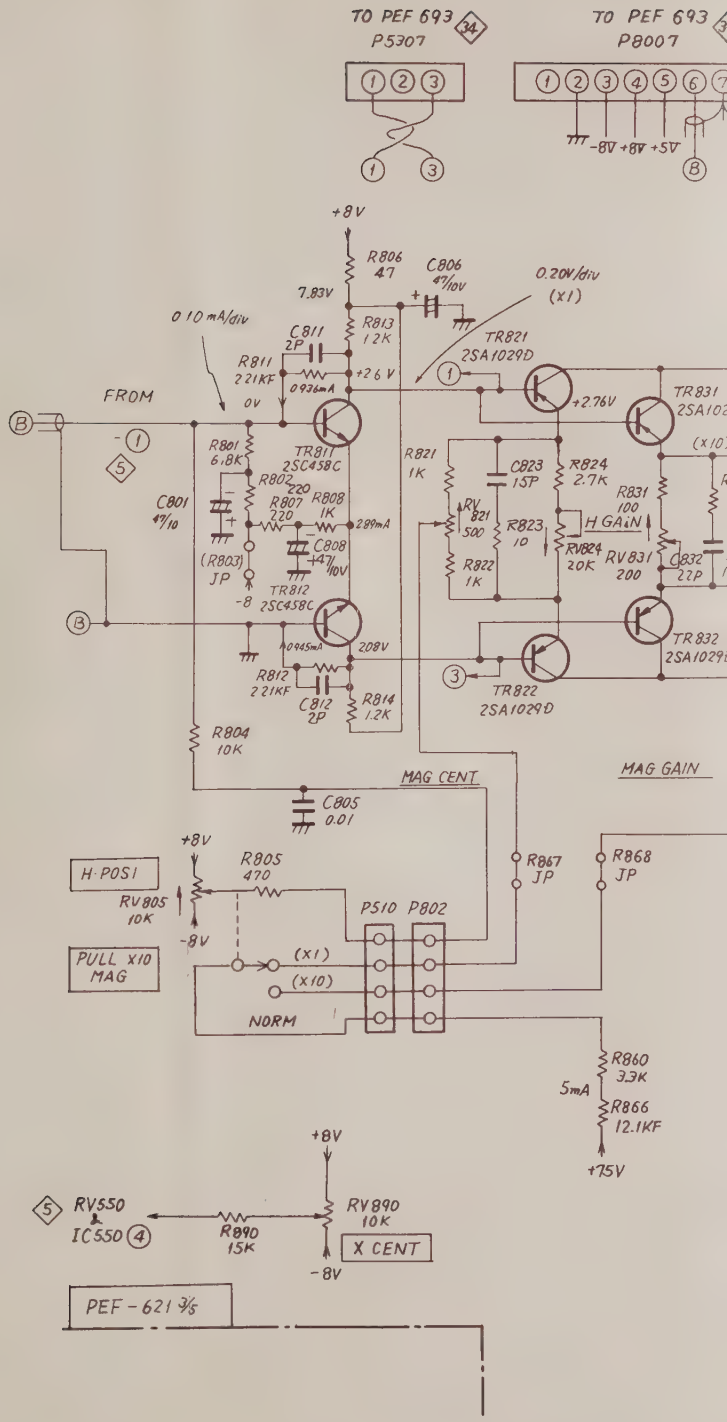


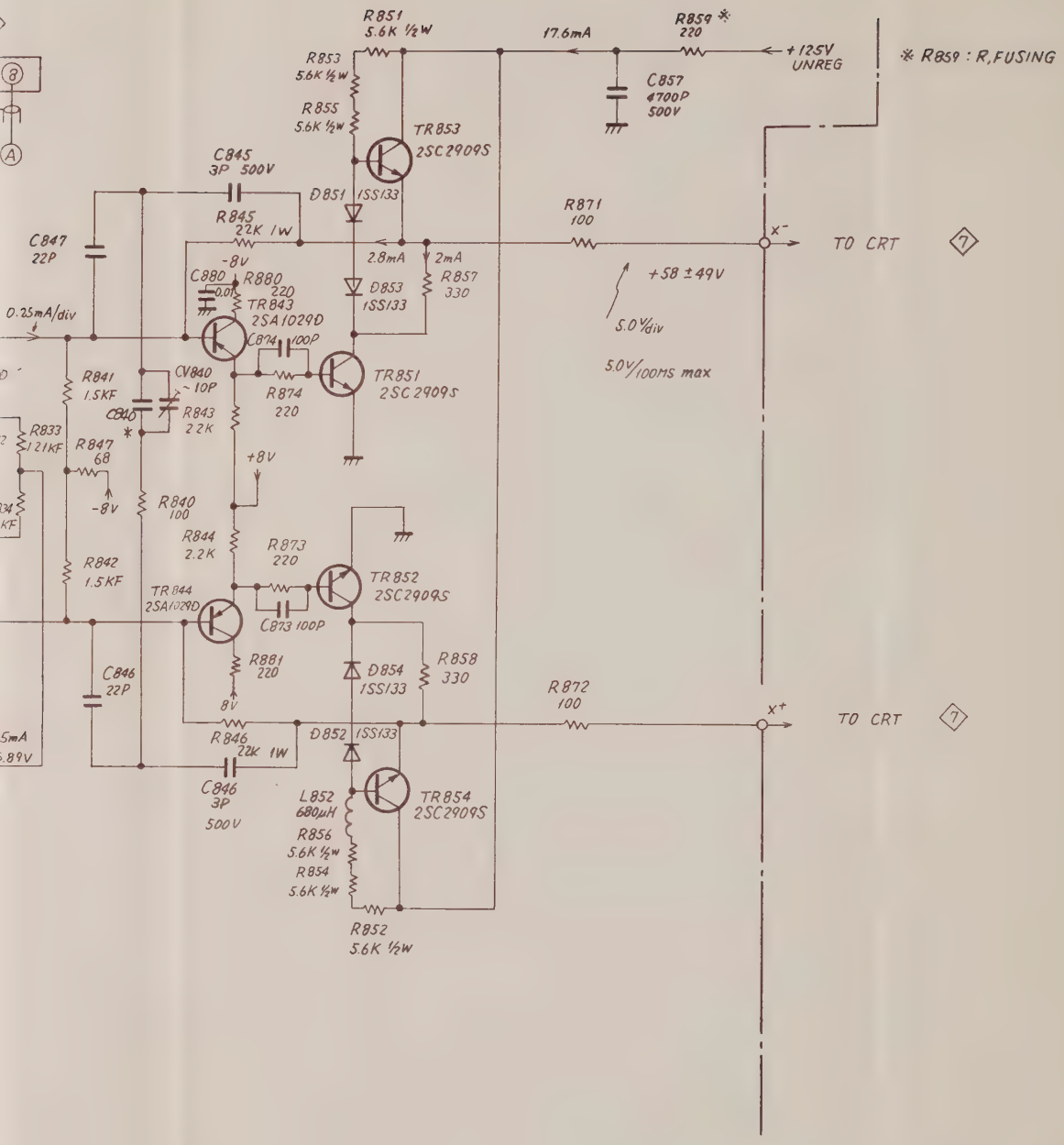
4 TRIG GEN (PEF-621F)


+5V
+8V
SWEEP VAR
UNCAL
RS40 560
RV540 2K
RS41 390
DS41 1SS133
DS43 SR5030 RED
RS43 1K
-8
C501 0.01
RS01 10
RS07 10K
IC502
TR503 2SA1029D
RS02 1K
RS09 2.2K
LS 03
L581 0.22μ
RS81 100
RS04 47K
IC501 74S74
IC402
FROM IC401 (14)
AUTO
FROM S403-6
FROM IC401 (7)
DS20 MA161
C520 82P
CV520 ~40P
RS20 2.2K
RS19 2.2K
DS21 MA161
+0.8±04V
RS05 3.3K
RS06 47K
C505 1P
RS21 47K
DS22 MA161
D501 1SS133
C519 47/10V
C507 47/10V
C510 0.01
RS10 47
T=90mS
RS13 8.2K
TR514 2SC458C
+1.2V~ 2.9V
RS14 1.5K
C511 22/25V
RS15 15K
(1.2V)
0.42mA
DS35 MA161
DS36 1SS133
+4.4V~ +0.2V(1.31~0.23)
-5.9V
DS71
DS72 1SS133
C571 0.01
TR520 2SK304E
RS22 270
RS23 3.3K
RV473 5K
C524 8P
1.43M
715K
286K
143K
71.5K
28.6K
RS27 10M
RS28 1.5M
C528 47μ/10V
IC501 74S74
R508 10
C508 0.01
C507 47/10
+15V +5V -8V SG
TO PEF-648 PS303

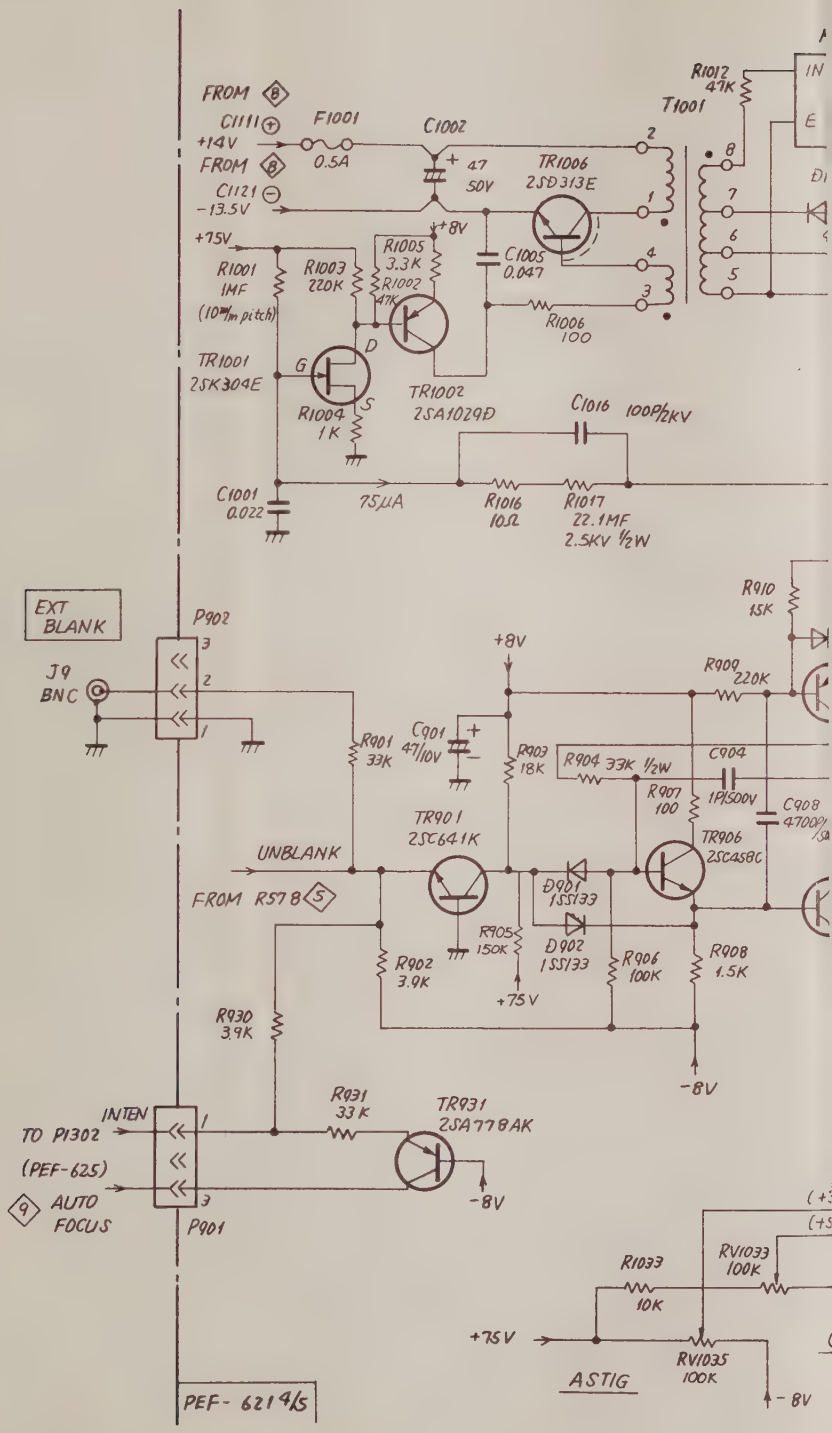


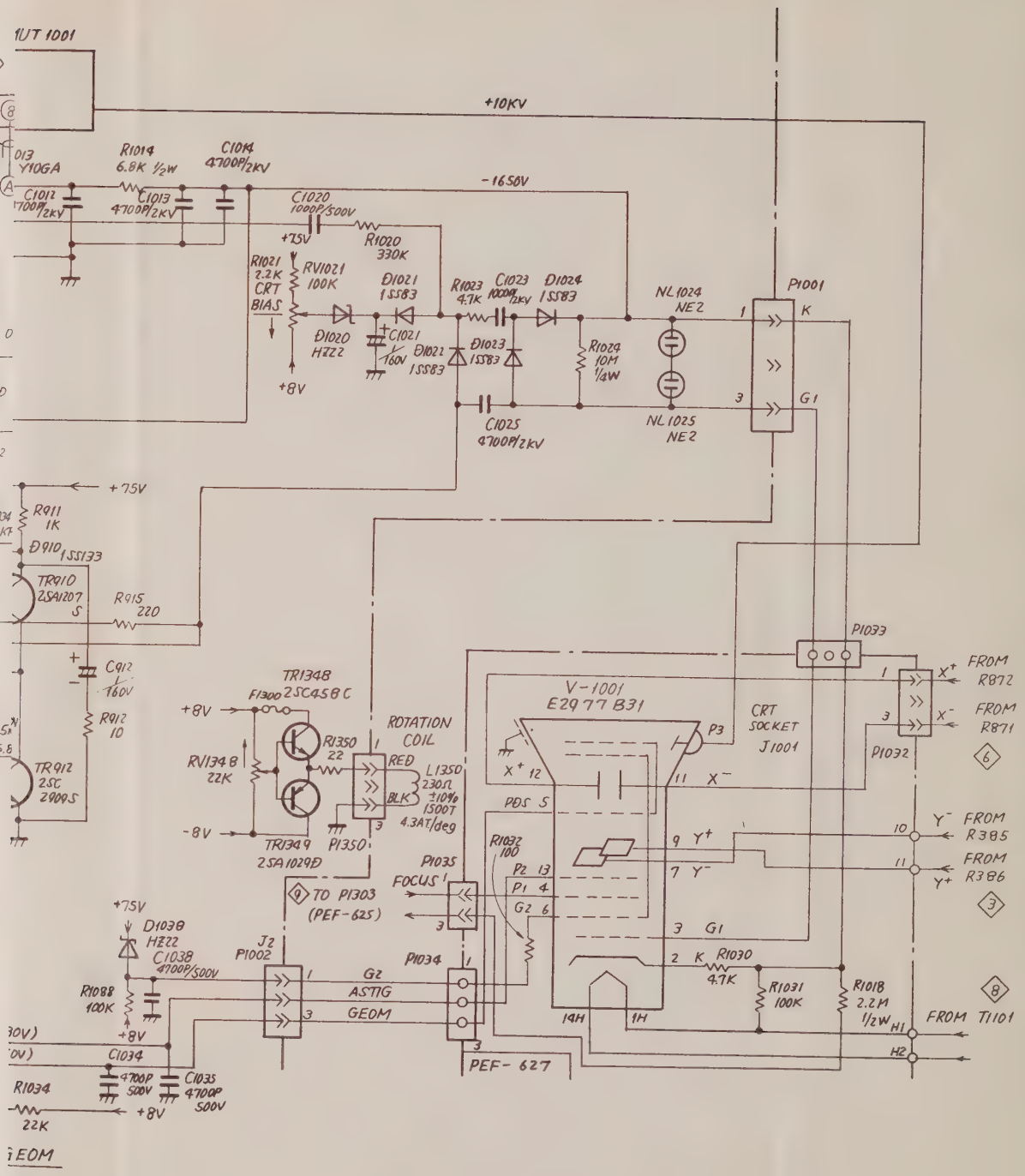
5 SWEEP GEN (PEF-621F)


TO PEF 693 P5307
TO PEF 693 P8007
-8V +8V +5V
+8V
R806 47
C806 47/10V
7.83V
0.20V/div (X1)
0.10mA/div
C811 2P
R813 1.2K
R811 221KF
0.936mA
+2.6V
TR821 2SA1029D
+2.76V
TR831 2SA102
FROM
0V
R801 6.8K
TR811 2SC458C
R821 1K
C823 15P
R824 2.7K
R831 100
H GAIN
C801 47/10
R802 220
R807 220
R808 1K
2.89mA
RV821 500
R823 10
RV824 20K
RV831 200
C832 22P
R822 1K
(R803) JP
C808 +47/10V
TR812 2SC458C
-8
TR832 2SA1029D
0.945mA
208V
R812 221KF
C812 2P
R814 1.2K
TR822 2SA1029D
R804 10K
MAG CENT
MAG GAIN
C805 0.01
+8V
H POSI
R805 470
RV805 10K
-8V
PULL X10 MAG
(X1)
(X10)
NORM
PS10 P802
R867 JP
R868 JP
R860 3.3K
5mA
R866 12.1KF
+75V
+8V
RV550
IC550
R890 15K
RV890 10K
X CENT
-8V
PEF-621 3/5

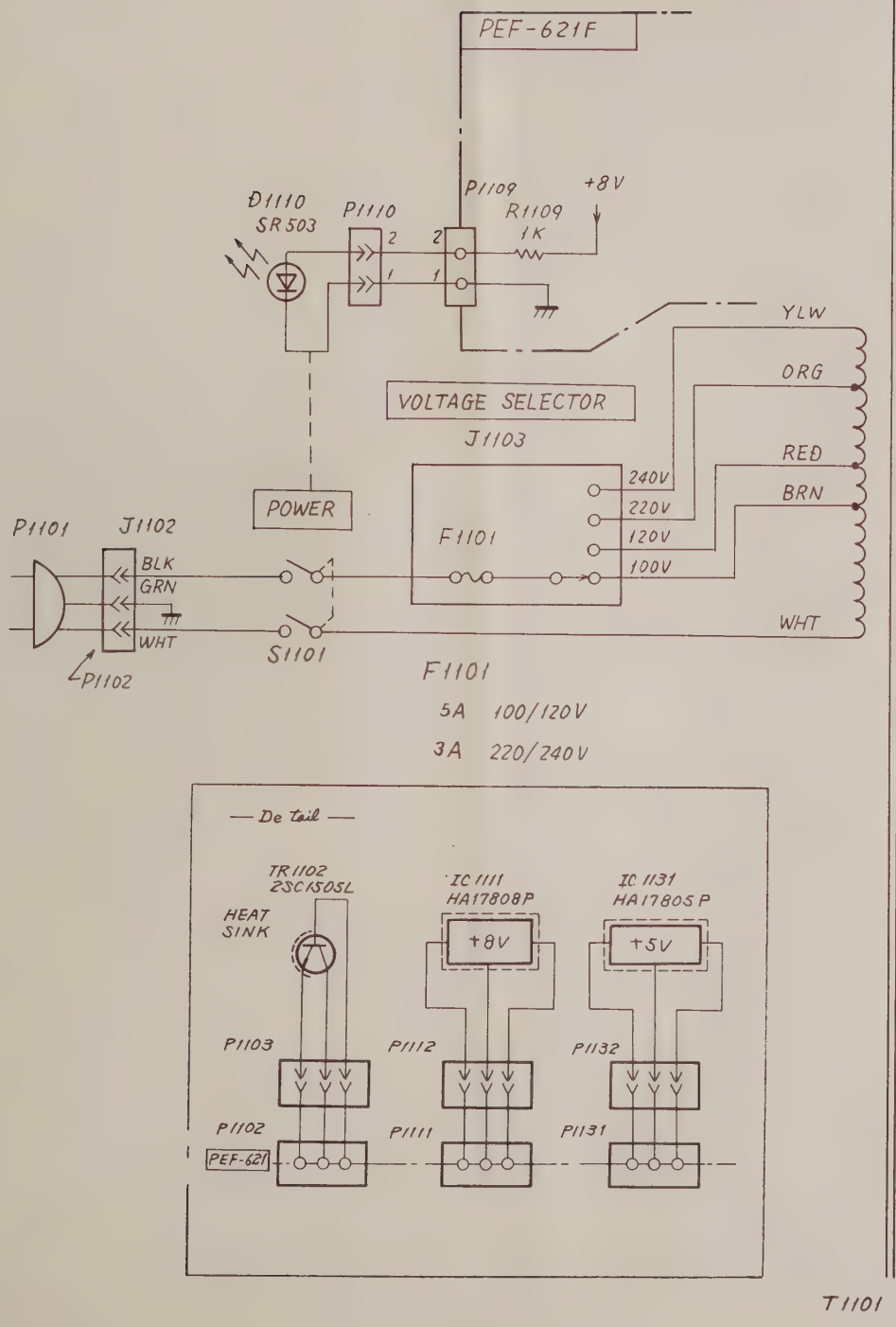


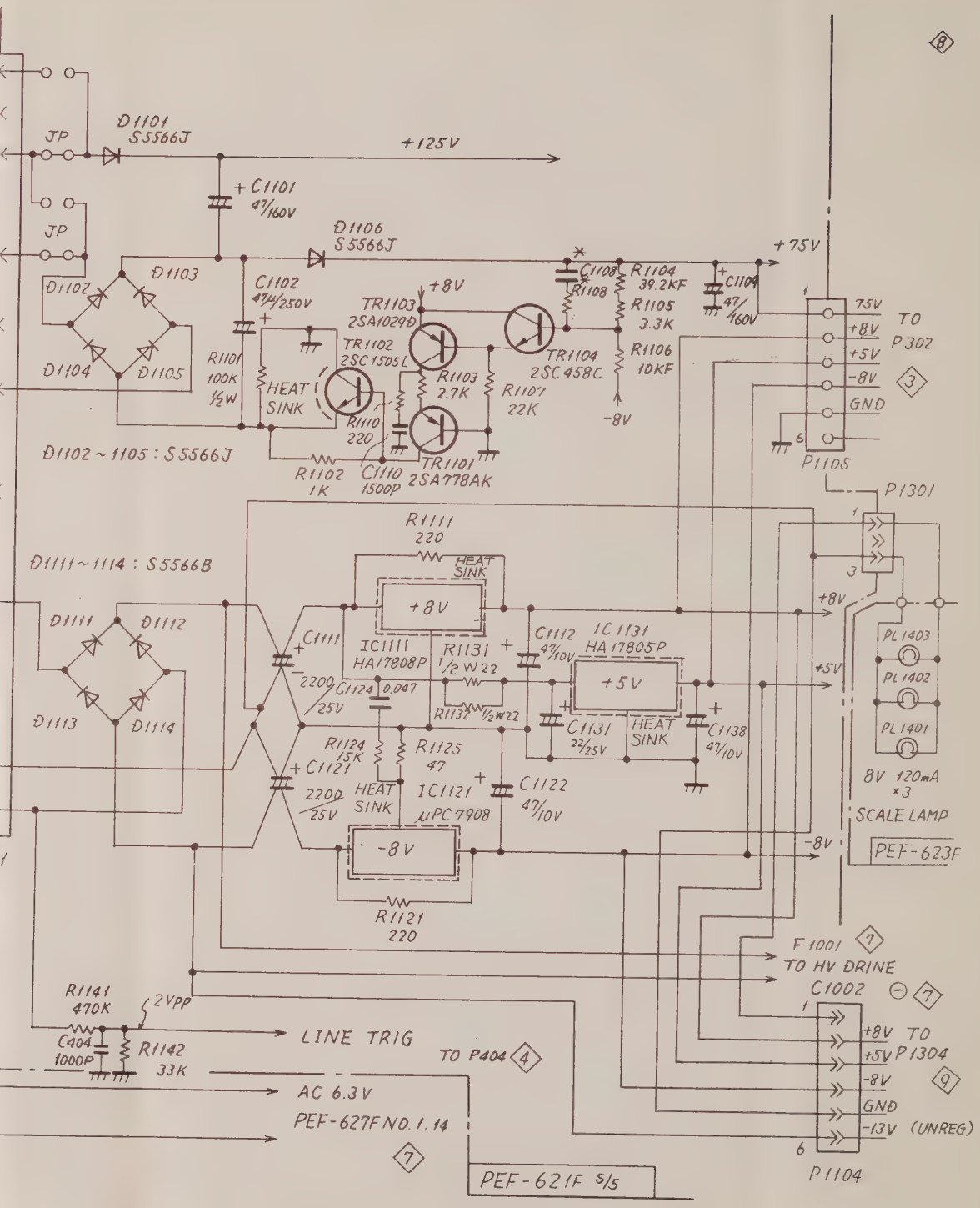
◇6◇ H AMP (PEF-621F)


FROM 8
C1111
+14V
FROM 8
C1121
-13.5V
F1001
0.5A
C1002
47
50V
TR1006
2SD313E
T1001
R1012
47K
+8V
+75V
R1001
1MF
(10mm pitch)
R1003
220K
R1005
3.3K
R1002
47K
C1005
0.047
R1006
100
TR1001
2SK304E
R1004
1K
TR1002
2SA1029D
C1016
100P/2KV
C1001
0.022
75μA
R1016
10Ω
R1017
22.1MF
2.5KV 1/2W
EXT BLANK
P902
J9
BNC
R901
33K
C901
47/10V
+8V
R903
18K
R904 33K 1/2W
R907
100
C904
1P/500V
C908
4700P/
R910
15K
R909
220K
TR901
2SC641K
TR906
2SC4580
UNBLANK
FROM RS78 5
D901
1SS133
D902
1SS133
R905
150K
+75V
R902
3.9K
R906
100K
R908
1.5K
R930
3.9K
-8V
INTEN
TO P1302
(PEF-625)
9 AUTO FOCUS
P901
R931
33K
TR931
2SA778AK
-8V
R1033
10K
RV1033
100K
+75V
RV1035
100K
ASTIG
-8V
PEF-6214/5

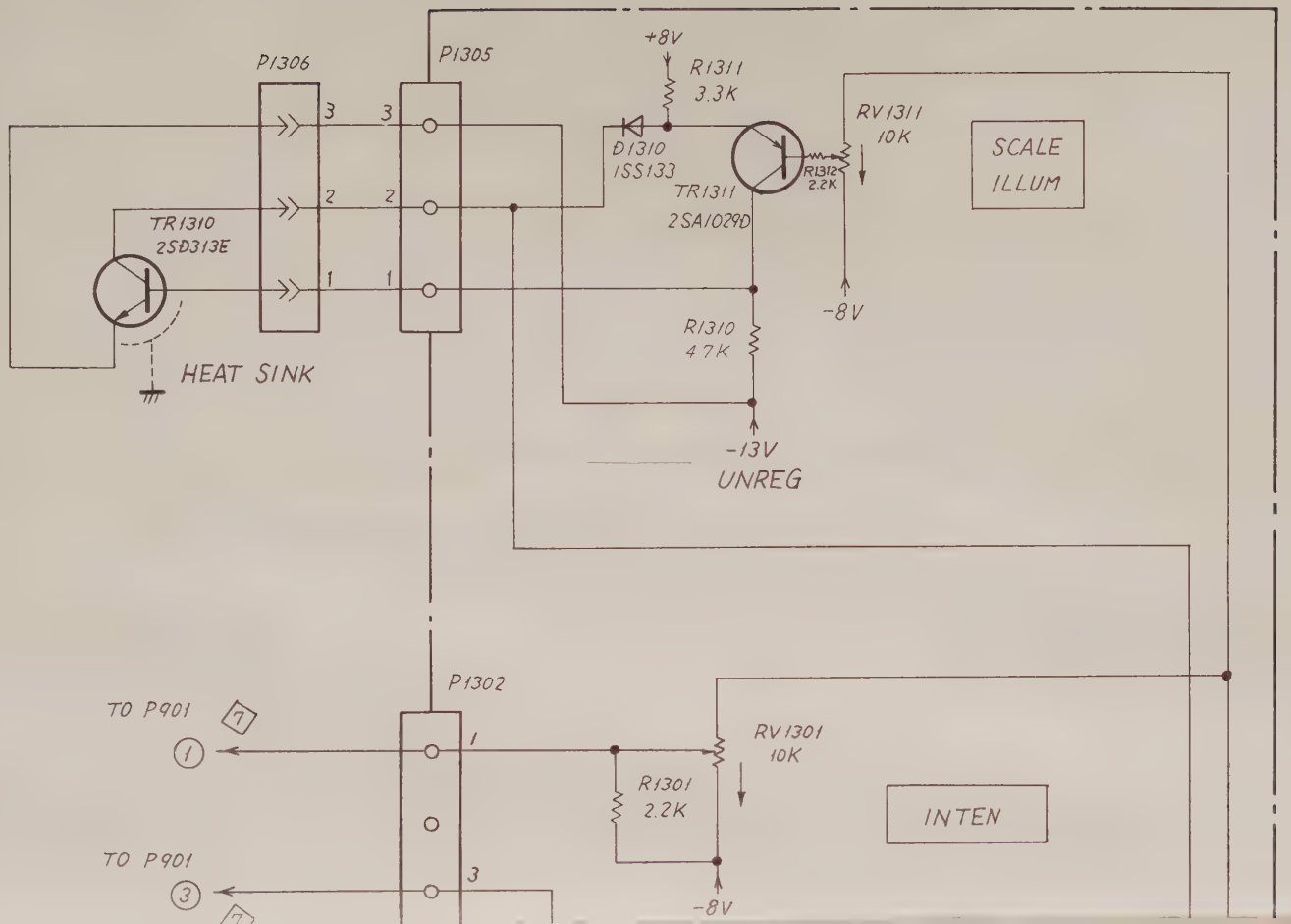


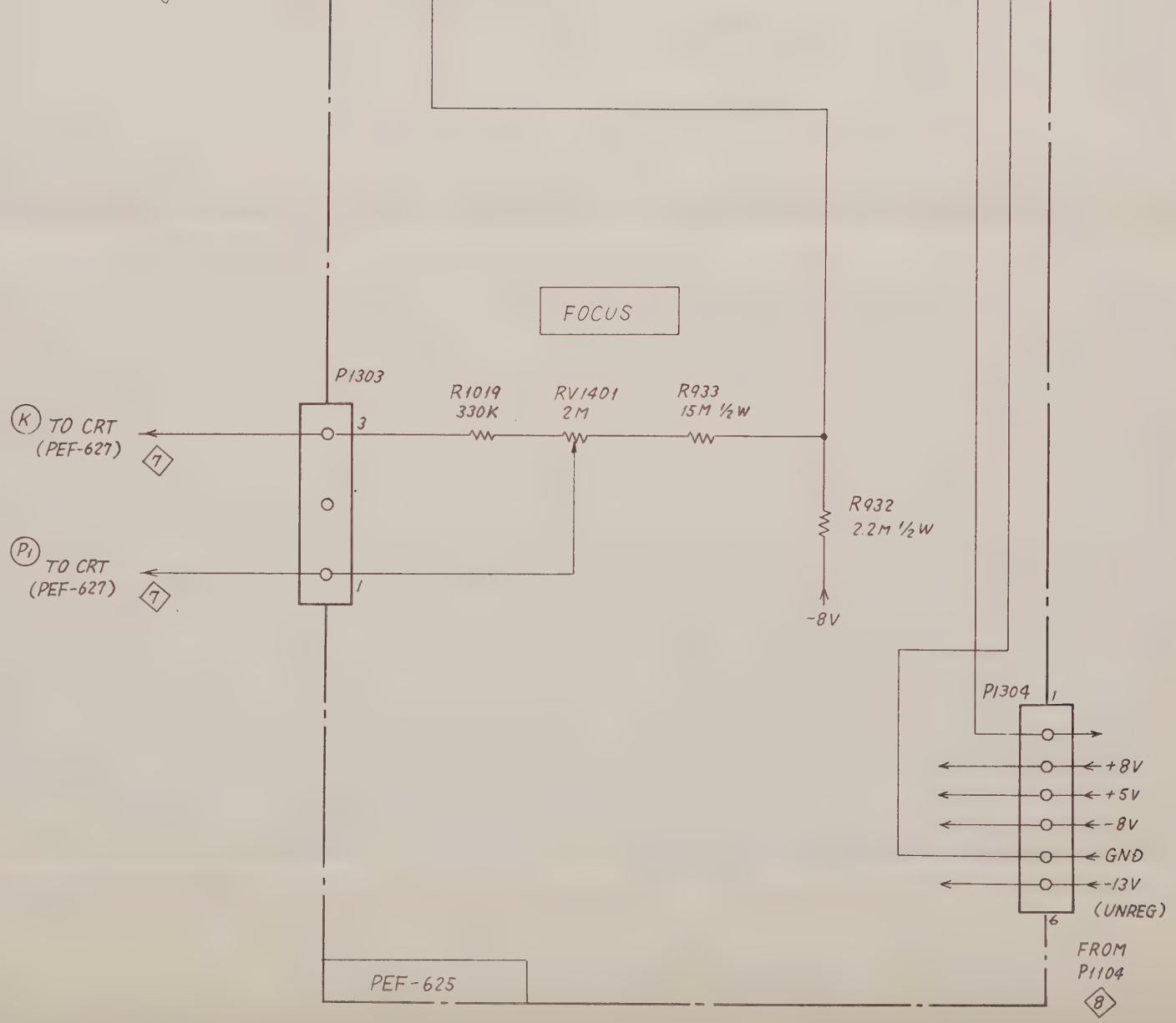
7 HV & Z AMP (PEF-621F)


PEF-621F
D1110
SR503
P1110
P1109
R1109
1K
+8V
YLW
ORG
VOLTAGE SELECTOR
J1103
RED
BRN
POWER
240V
220V
120V
100V
F1101
P1101
J1102
BLK
GRN
WHT
S1101
P1102
WHT
F1101
5A 100/120V
3A 220/240V
— De tail —
TR1102
2SC1505L
HEAT
SINK
IC 1111
HA17808P
+8V
IC 1131
HA17805P
+5V
P1103
P1112
P1132
P1102
P1111
P1131
PEF-621
T1101
RED
125V
84V
ORG
F1102
(1A)
YLW
0V
GRN
11.6V
BLK
PPL
11.6V
BLU
BLU

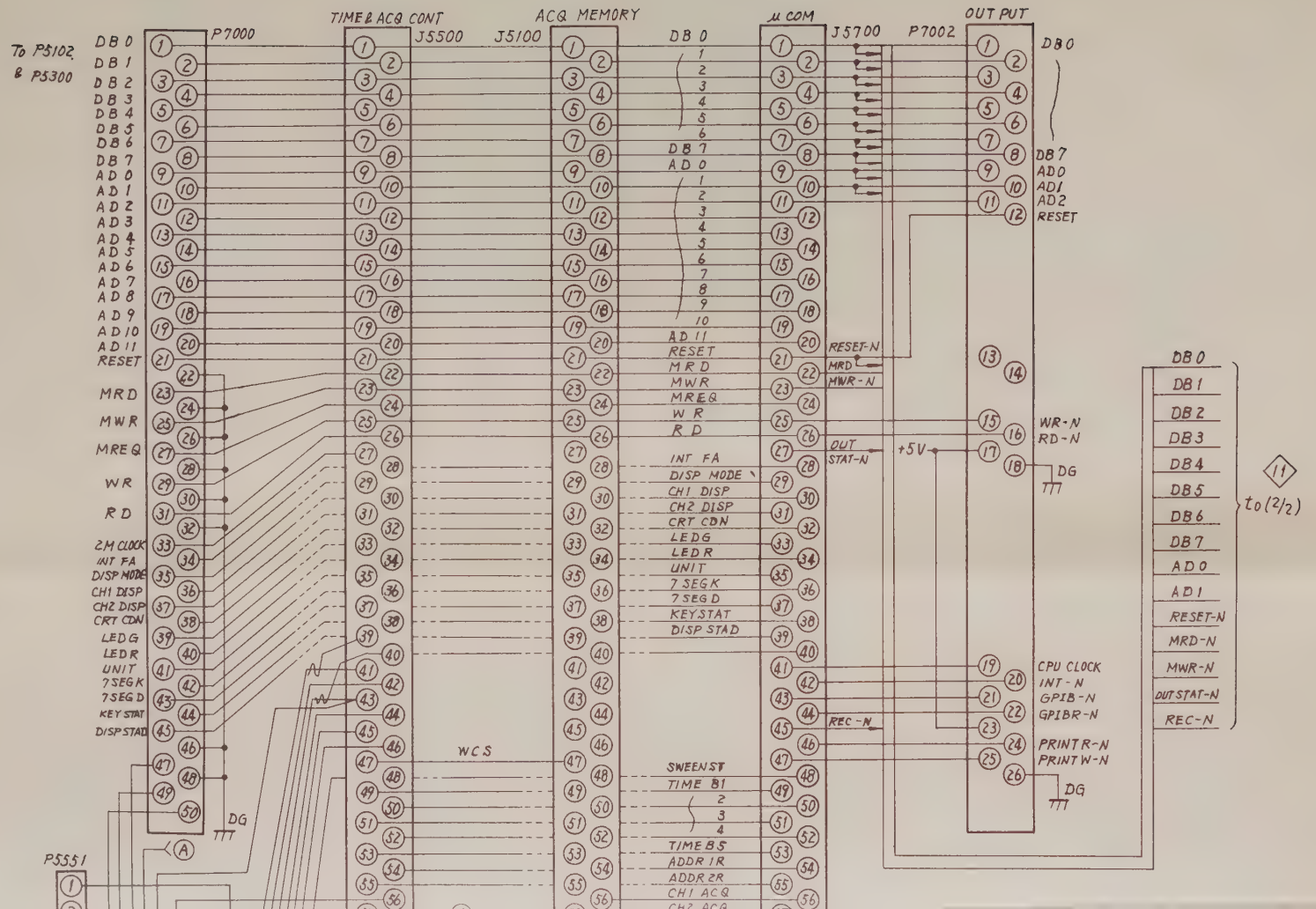


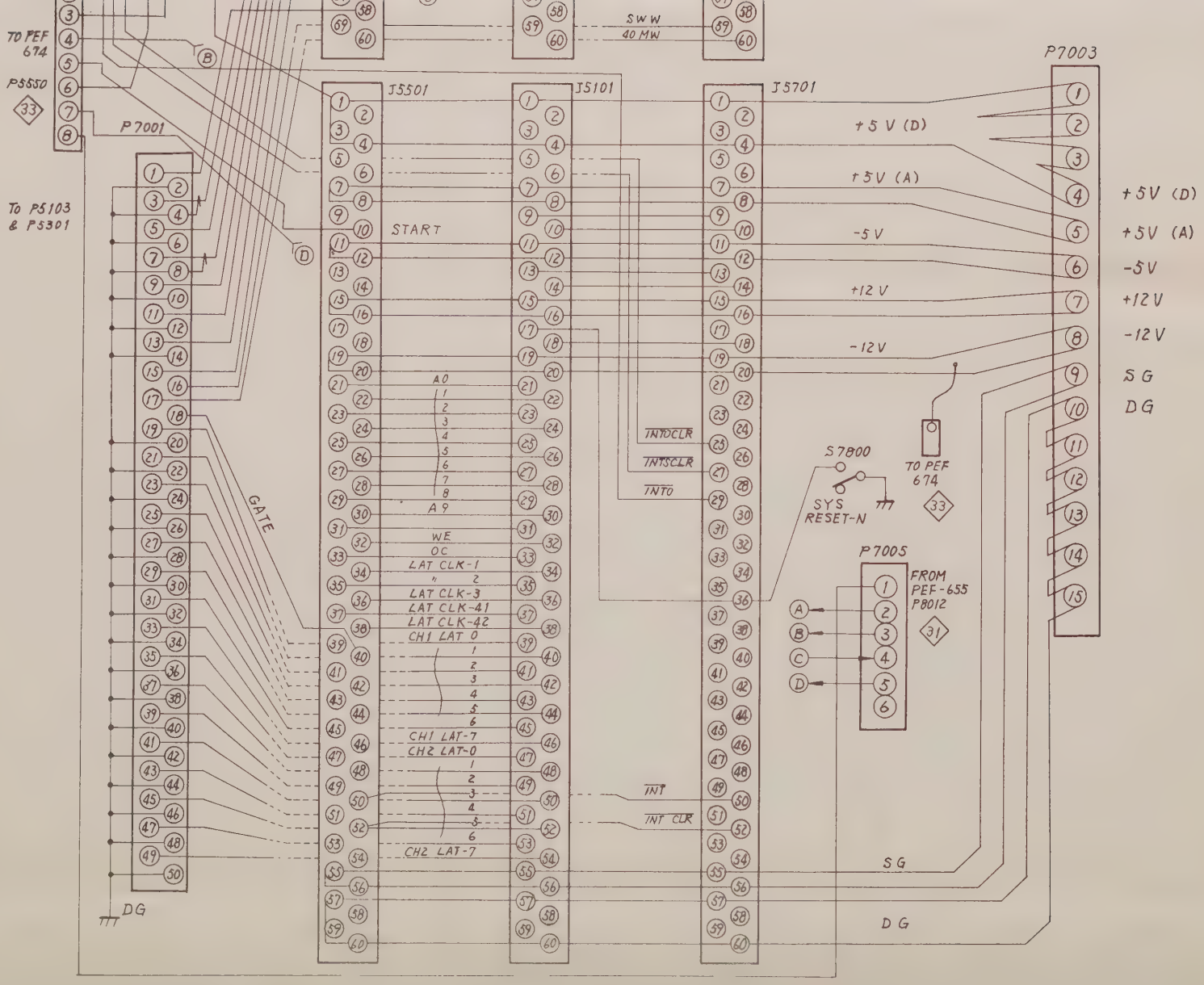
8 POWER SUPPLY 1 (PEF-621F)


P1306
P1305
+8V
R1311
3.3K
RV1311
10K
SCALE
ILLUM
D1310
1SS133
R1312
2.2K
TR1311
2SA1029D
TR1310
2SD313E
HEAT SINK
-8V
R1310
4.7K
-13V
UNREG
P1302
TO P901
7
1
RV1301
10K
R1301
2.2K
INTEN
TO P901
3
7
-8V

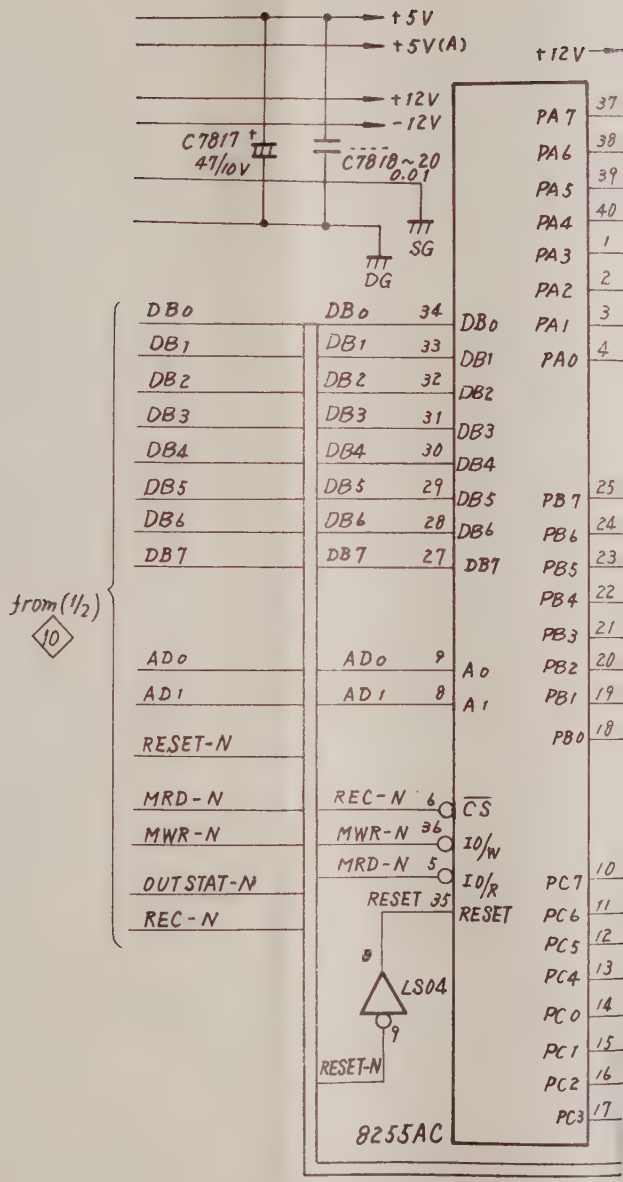


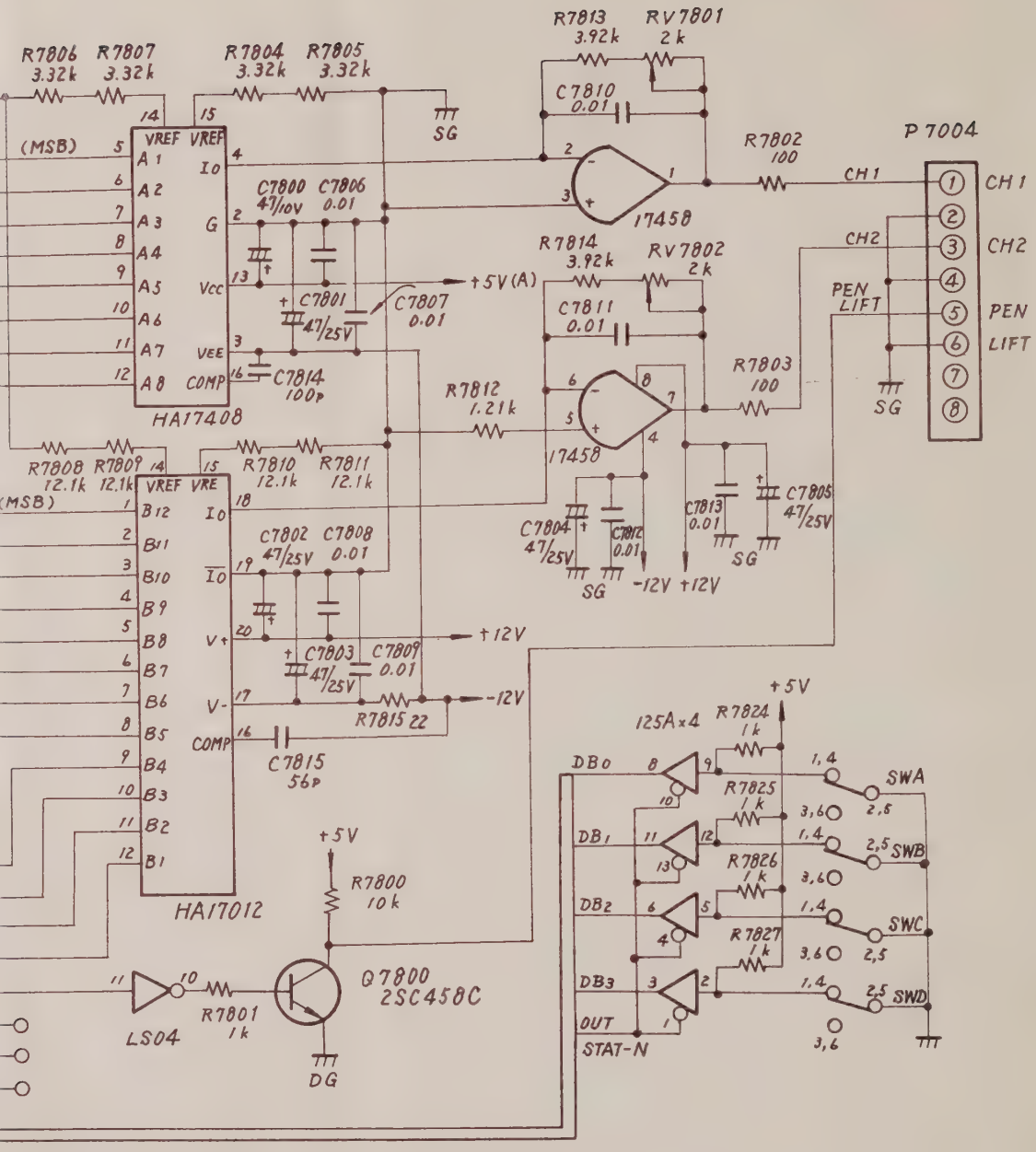
9 RV/LAMP (PEF-625)


To P5102 & P5300
P7000
TIME & ACQ CONT
J5500
ACQ MEMORY
J5100
μ COM
J5700
OUT PUT
P7002
DB 0
DB 1
DB 2
DB 3
DB 4
DB 5
DB 6
DB 7
AD 0
AD 1
AD 2
AD 3
AD 4
AD 5
AD 6
AD 7
AD 8
AD 9
AD 10
AD 11
RESET
MRD
MWR
MREQ
WR
RD
2M CLOCK
INT FA
DISP MODE
CH1 DISP
CH2 DISP
CRT CDN
LED G
LED R
UNIT
7 SEG K
7 SEG D
KEY STAT
DISP STAD
DG
WCS
SWEEN ST
TIME B1
TIME B5
ADDR 1R
ADDR 2R
CH1 ACQ
CH2 ACQ
RESET-N
MRD-N
MWR-N
OUT STAT-N
REC-N
+5V
WR-N
RD-N
CPU CLOCK
INT-N
GPIB-N
GPIBR-N
PRINT R-N
PRINT W-N
P5551
A
11
to (2/2)

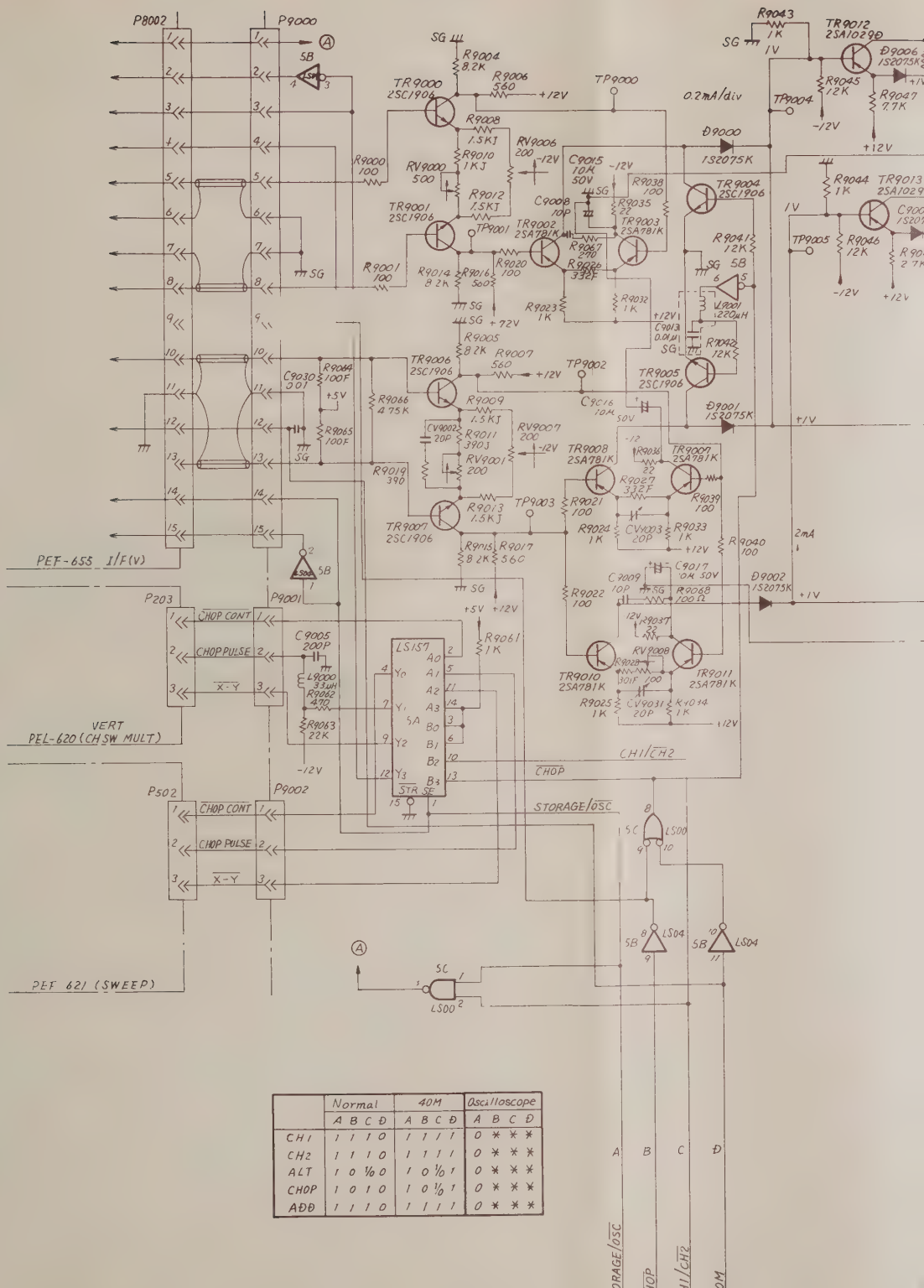


10 BACK BOARD & PLOT OUT CONT (PEF-642) 1/2

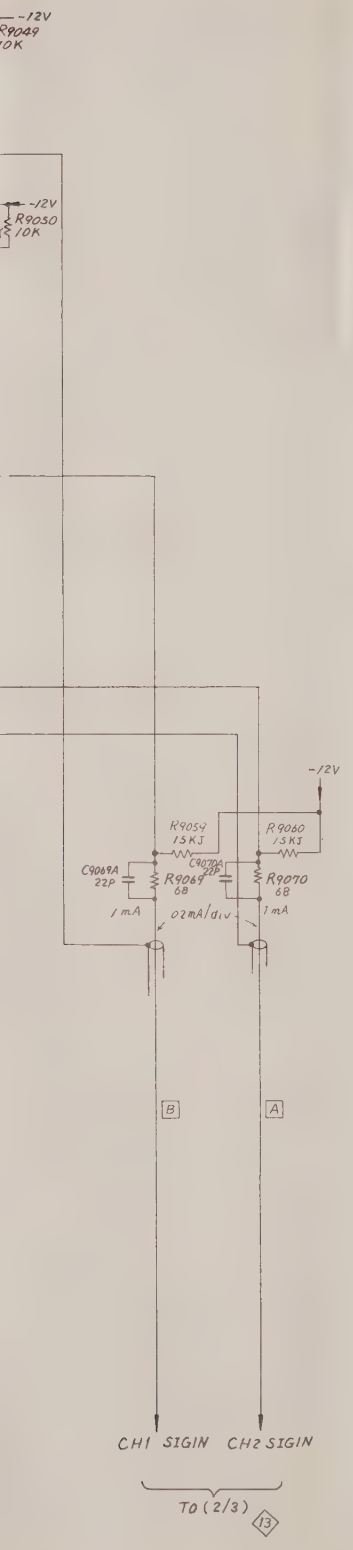

+5V
+5V(A)
+12V
+12V
-12V
C7817 +
47/10V
C7818~20
0.01
SG
DG
from(1/2)
10
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
AD0
AD1
RESET-N
MRD-N
MWR-N
OUTSTAT-N
REC-N
REC-N 6
MWR-N 36
MRD-N 5
RESET 35
LS04
RESET-N
8255AC
CS
IO/W
IO/R
RESET
A0
A1
PA7
PA6
PA5
PA4
PA3
PA2
PA1
PA0
PB7
PB6
PB5
PB4
PB3
PB2
PB1
PB0
PC7
PC6
PC5
PC4
PC0
PC1
PC2
PC3

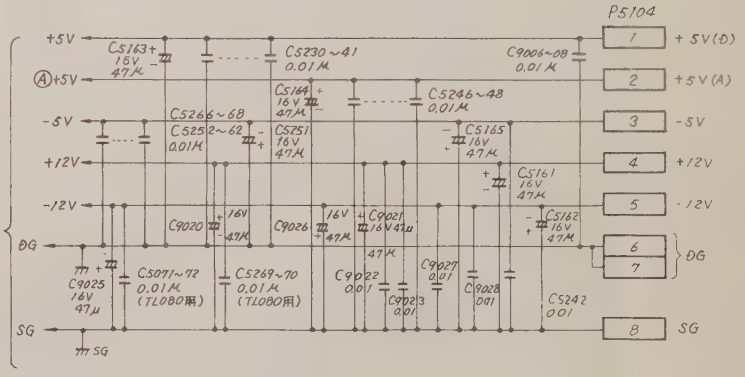


11 BACK BOARD & PLOT OUT CONT (PEF-642) 2/2

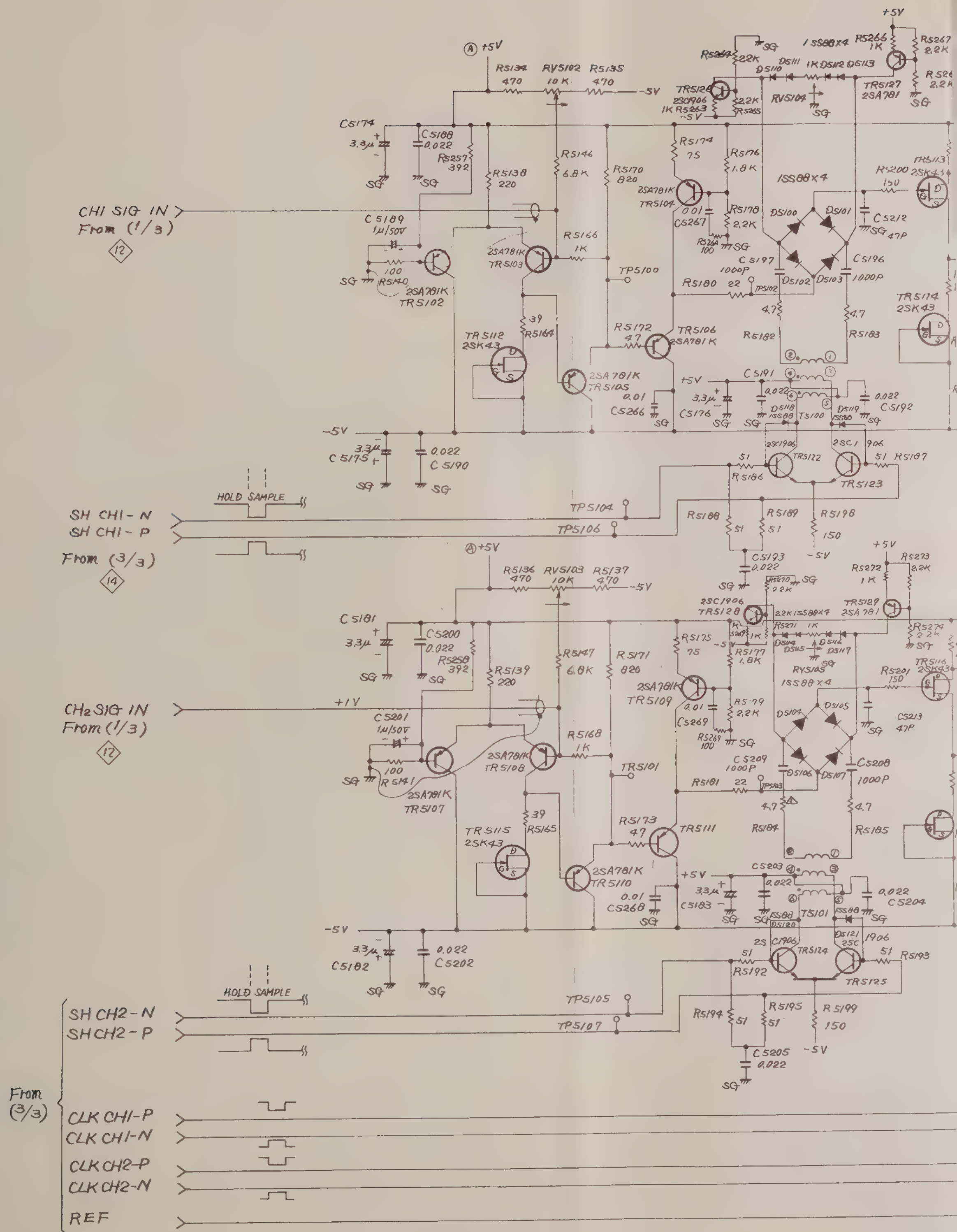


	Normal				40M				Oscilloscope			
	A	B	C	D	A	B	C	D	A	B	C	D
CH1	1	1	1	0	1	1	1	1	0	*	*	*
CH2	1	1	1	0	1	1	1	1	0	*	*	*
ALT	1	0	1/0	0	1	0	1/0	1	0	*	*	*
CHOP	1	0	1	0	1	0	1/0	1	0	*	*	*
ADD	1	1	1	0	1	1	1	1	0	*	*	*

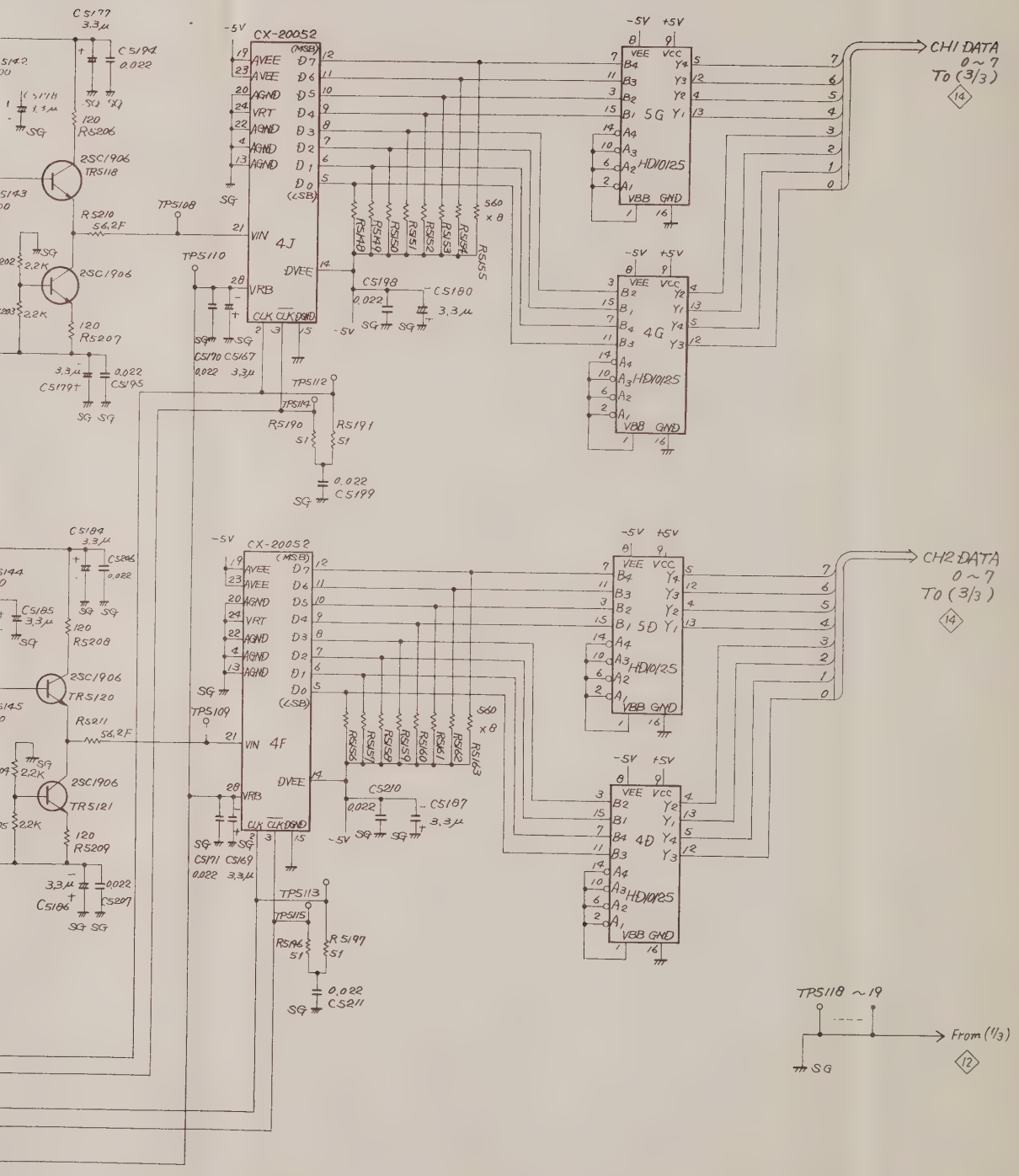




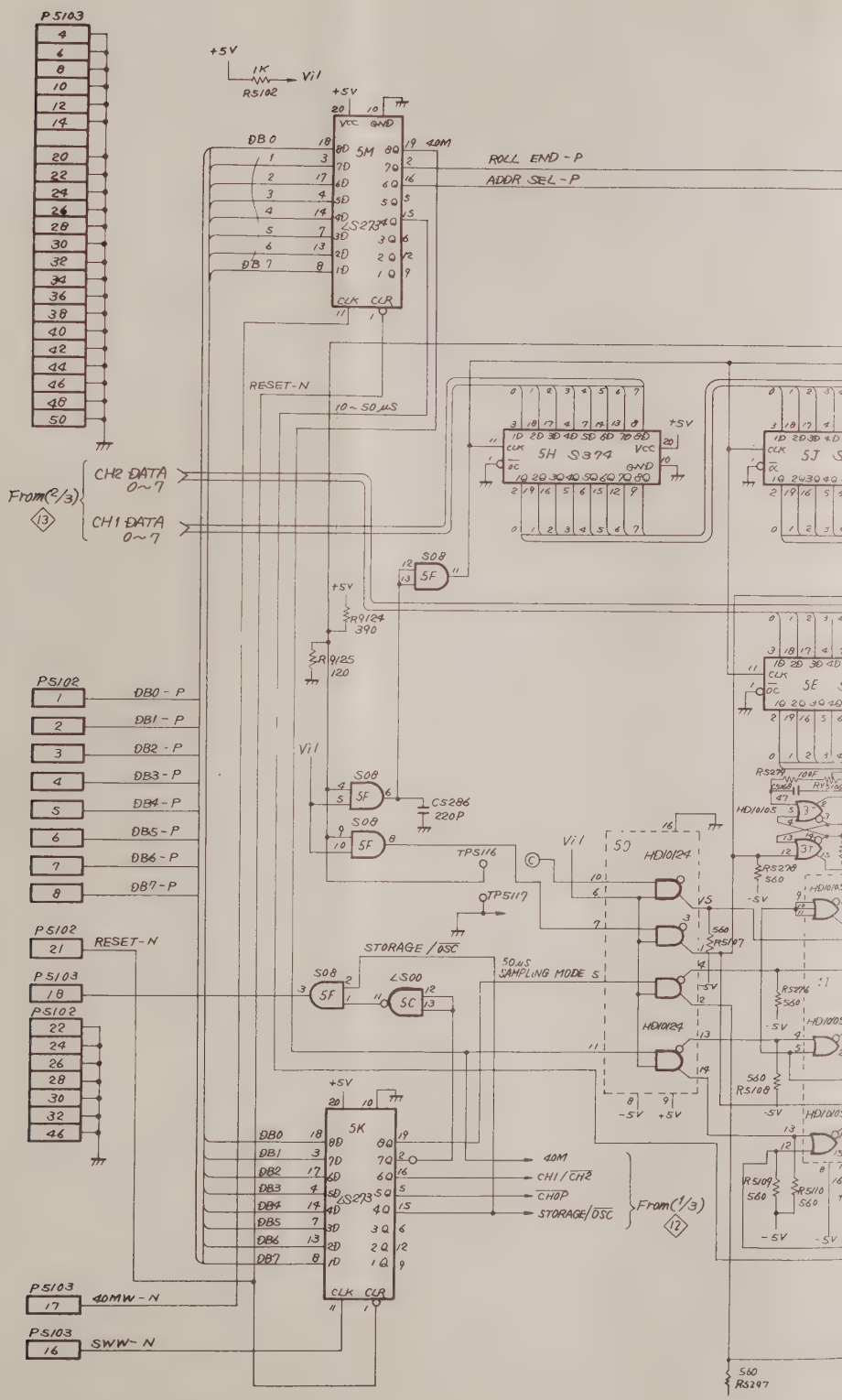
12 V INTERFACE, S/H & A/D (PEF-643) 1/3

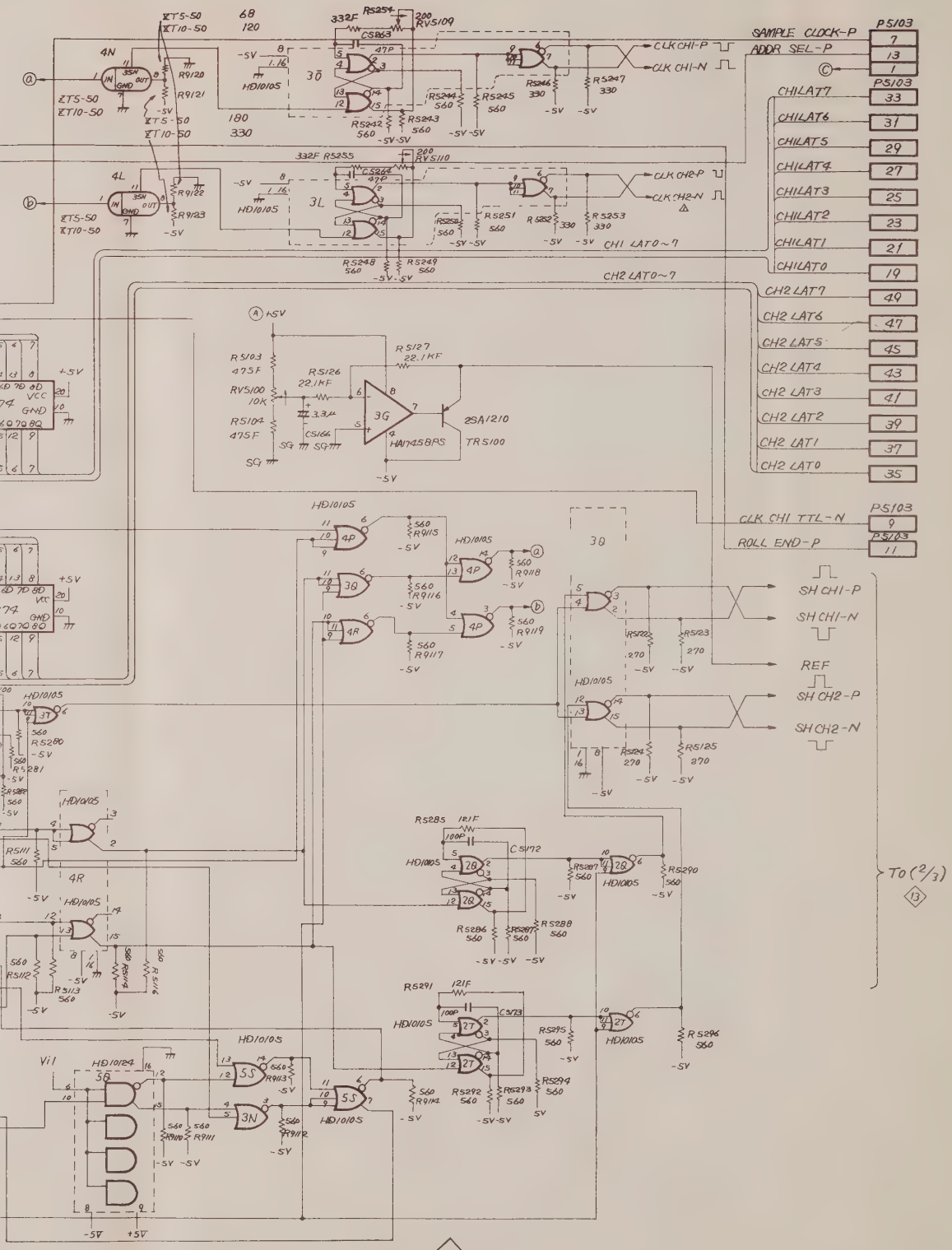


CH1 SIG IN
From (1/3)
12
SH CH1-N
SH CH1-P
From (3/3)
14
CH2 SIG IN
From (1/3)
12
SH CH2-N
SH CH2-P
From (3/3)
CLK CH1-P
CLK CH1-N
CLK CH2-P
CLK CH2-N
REF
HOLD SAMPLE
HOLD SAMPLE
A +5V
R5134 470
RV5102 10K
R5135 470
-5V
C5174 3.3μ
C5188 0.022
R5257 392
R5138 220
R5146 6.8K
R5170 820
C5189 1μ/50V
100 R5140
2SA781K TR5102
2SA781K TR5103
R5166 1K
TP5100
39 R5164
TR5112 2SK43
R5172 47
TR5106 2SA781K
2SA781K TR5105
0.01 C5266
R5174 75
2SA781K TR5104
0.01 C5267
R5176 1.8K
R5178 2.2K
R526A 100
1SS88×4
DS100
DS101
DS102
DS103
C5197 1000P
C5196 1000P
R5180 22
TP5102
4.7 R5182
4.7 R5183
C5212 47P
R5200 150
TR5113 2SK43
TR5114 2SK43
+5V
R5266 1K
R5267 2.2K
TR5127 2SA781
R5264 22K
TR5126 2SC1906
1K R5263
2.2K R5265
DS110
DS111
1K DS112 DS113
1SS88×4
RV5104
C5191 0.022
C5176 3.3μ
DS118 1SS88
T5100
DS119 1SS88
C5192 0.022
C5175 3.3μ
C5190 0.022
2SC1906 TR5122
2SC1906 TR5123
51 R5186
51 R5187
TP5104
TP5106
R5188 51
R5189 51
R5198 150
C5193 0.022
A +5V
R5136 470
RV5103 10K
R5137 470
C5181 3.3μ
C5200 0.022
R5258 392
R5139 220
R5147 6.8K
R5171 820
+1V
C5201 1μ/50V
100 R5141
2SA781K TR5107
2SA781K TR5108
R5168 1K
TR5101
39 R5165
TR5115 2SK43
R5173 47
TR5111
2SA781K TR5110
0.01 C5268
R5175 75
2SA781K TR5109
0.01 C5269
R5177 1.8K
R5179 2.2K
R5269 100
C5209 1000P
C5208 1000P
R5181 22
TP5103
4.7 R5184
4.7 R5185
DS104
DS105
DS106
DS107
1SS88×4
RVS105
C5213 47P
R5201 150
TR5116 2SK43
2SC1906 TR5128
R5270 2.2K
R5271 1K
R5272 1K
R5273 2.2K
R5274 2.2K
TR5129 2SA781
DS114 DS115 DS116 DS117
C5203 0.022
C5183 3.3μ
T5101
DS120 1SS88
DS121 1SS88
C5204 0.022
C5182 3.3μ
C5202 0.022
2SC1906 TR5124
2SC1906 TR5125
51 R5192
51 R5193
TP5105
TP5107
R5194 51
R5195 51
R5199 150
C5205 0.022
SG

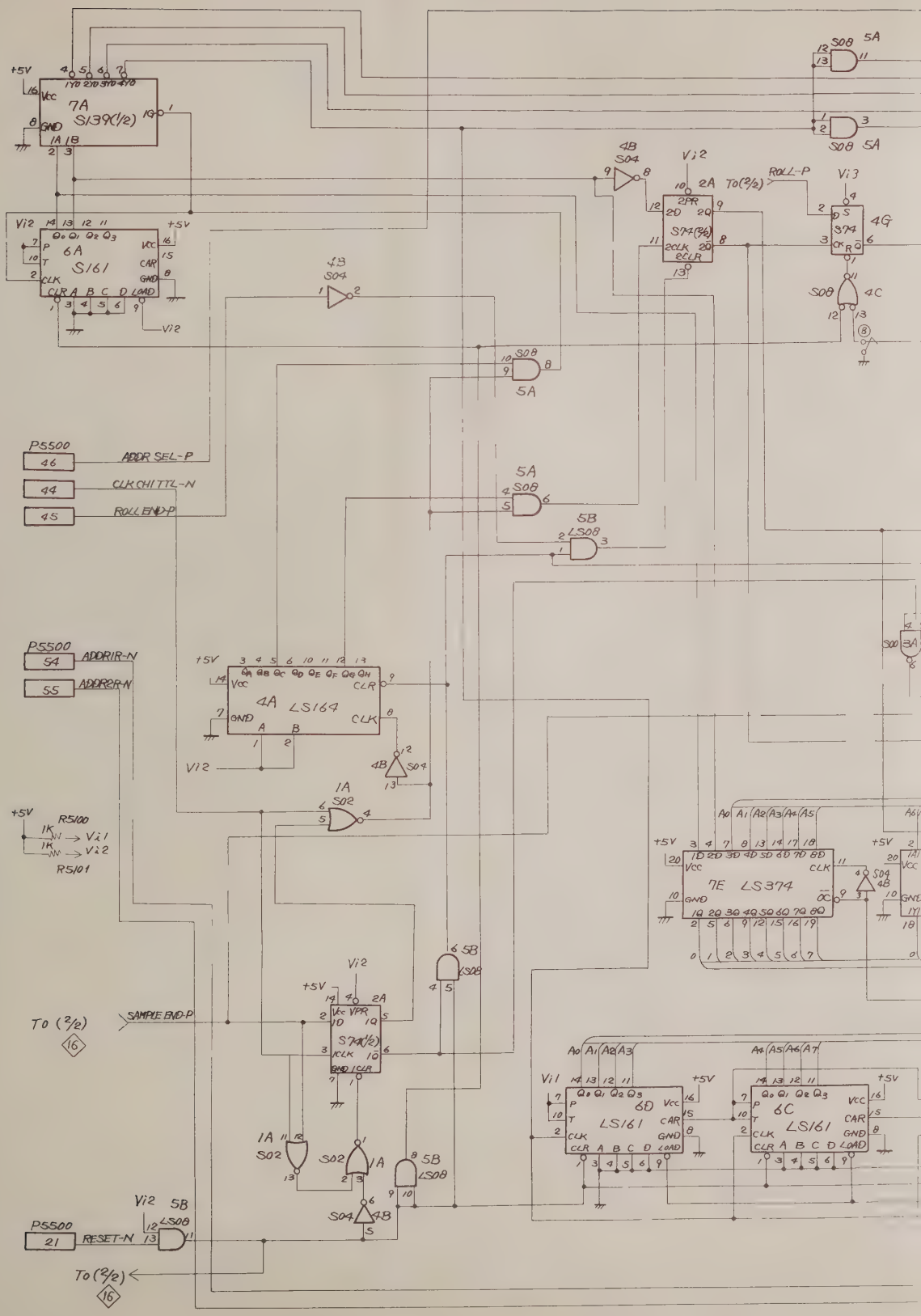


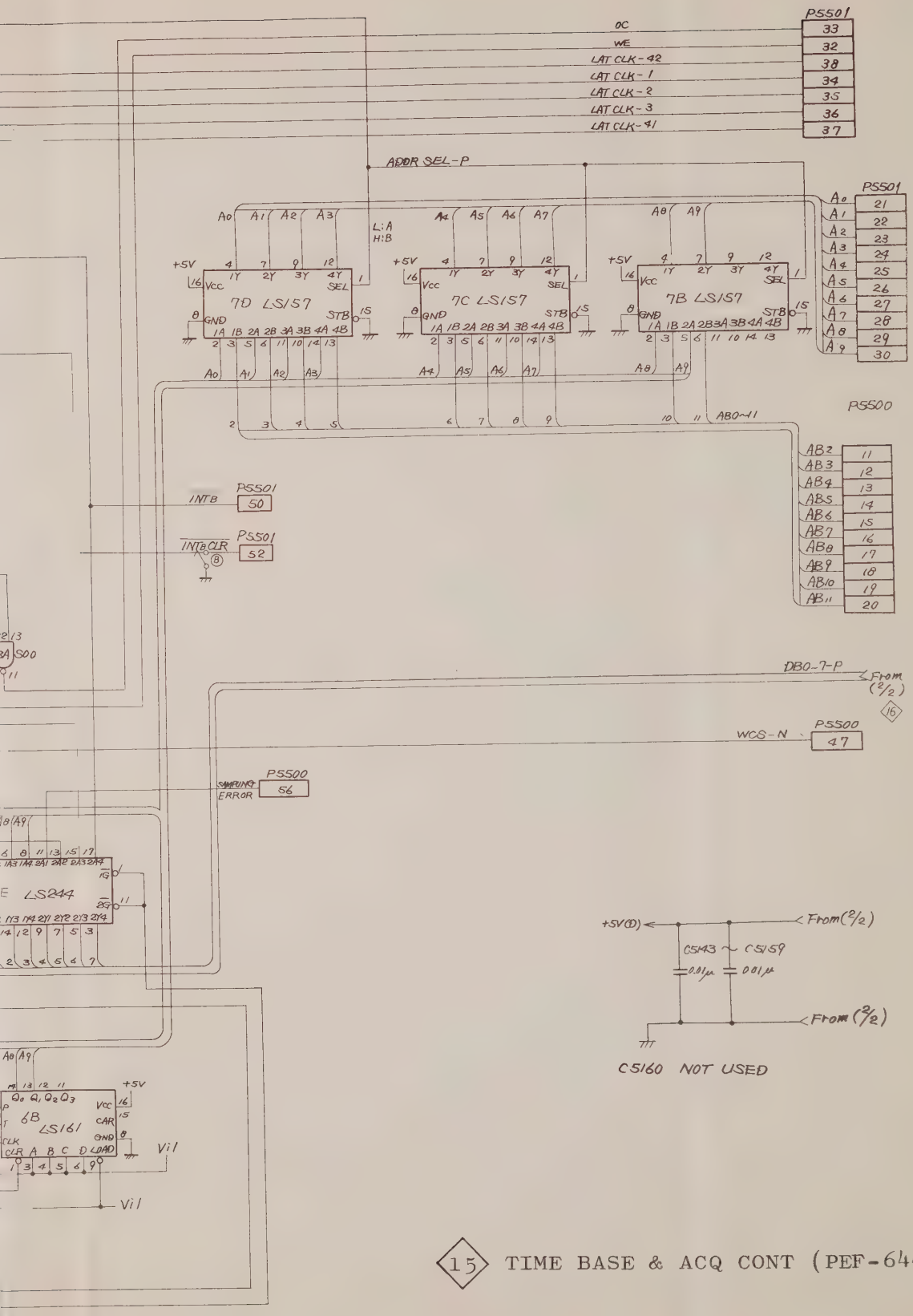
13 V INTERFACE, S/H & A/D (PEF-643) 2/3


P5103
4
6
8
10
12
14
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
+5V
1K
RS102
Vil
+5V
DB0
DB7
5M
LS273
ROLL END - P
ADDR SEL - P
RESET-N
10~50 μS
From(2/3)
13
CH2 DATA 0~7
CH1 DATA 0~7
5H S374
5J
5E
S08
5F
R9124
390
R9125
120
P5102
1
2
3
4
5
6
7
8
DB0 - P
DB1 - P
DB2 - P
DB3 - P
DB4 - P
DB5 - P
DB6 - P
DB7 - P
Vil
CS286
220P
TPS116
TPS117
5D
HD10124
VS
560
RS107
STORAGE / DSC
50uS SAMPLING MODE S
LS00
5C
P5102
21
RESET-N
P5103
18
P5102
22
24
26
28
30
32
46
5K
40M
CH1 / CH2
CHOP
STORAGE / DSC
From(1/3)
17
P5103
17
40MW - N
P5103
16
SWW - N
RS109
RS110
RS297
-5V

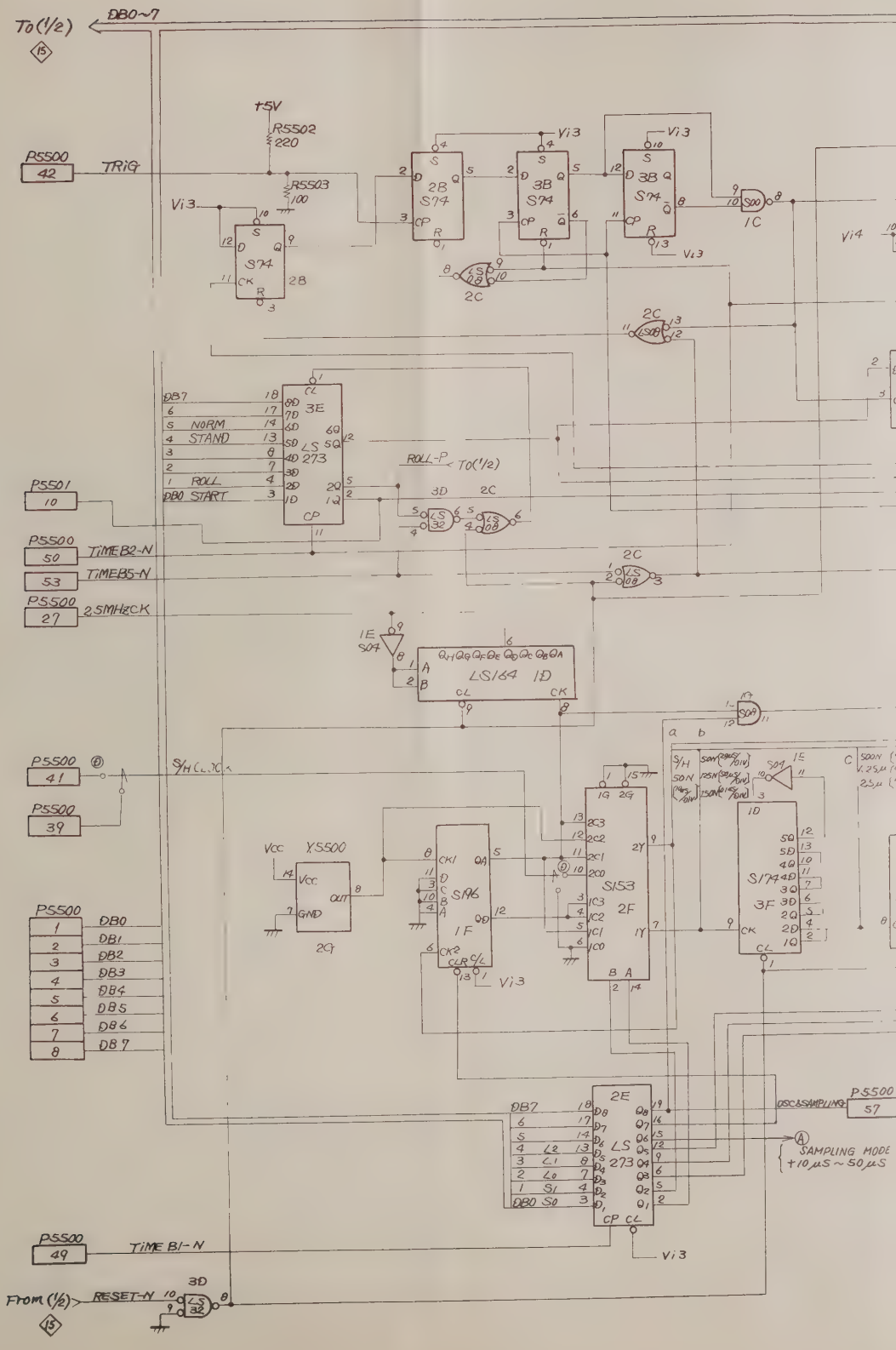


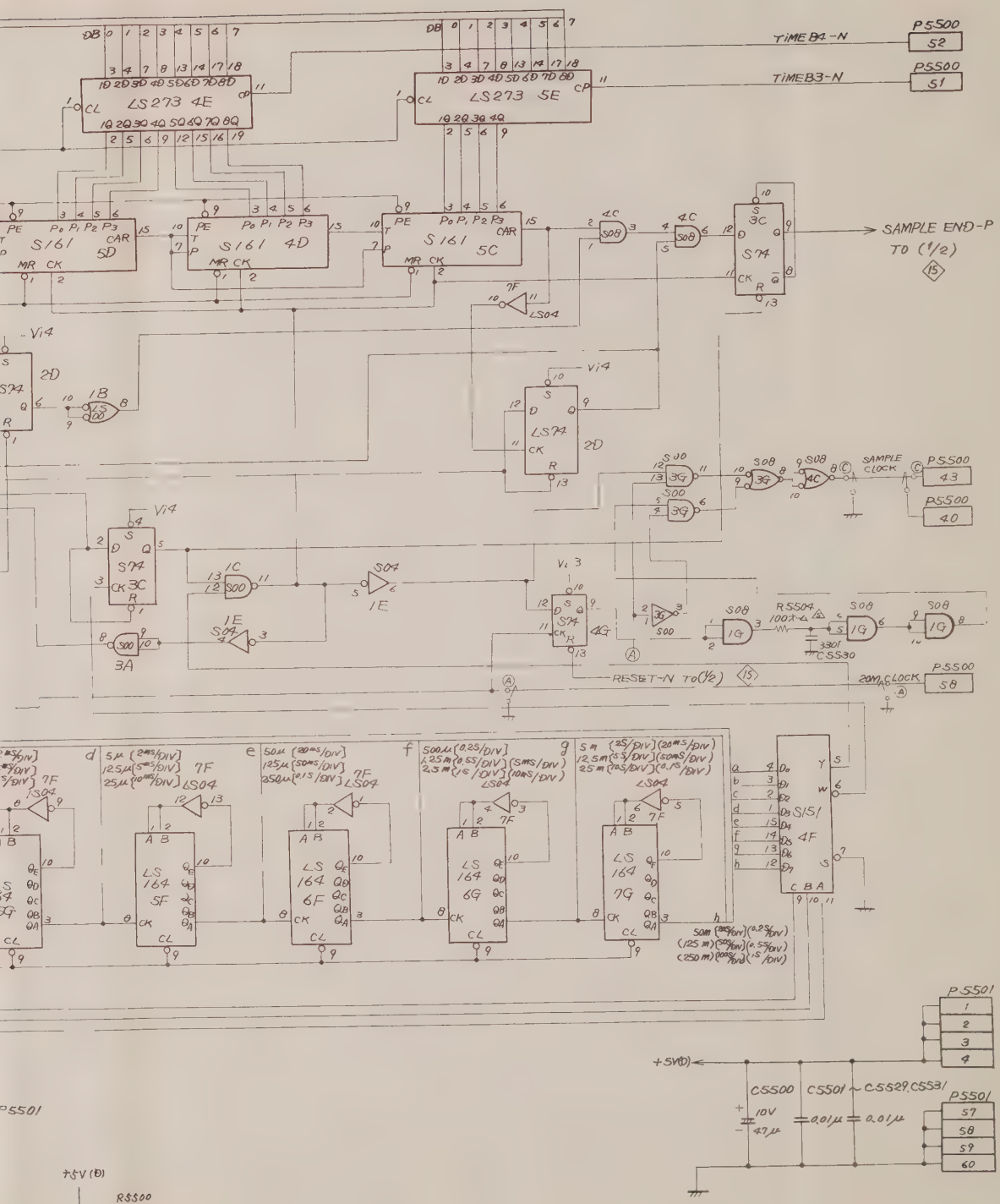
14 V INTERFACE, S/H & A/D (PEF-643) 3/3


7A S139(1/2)
6A S161
4A LS164
7E LS374
6D LS161
6C LS161
PS500
46 ADDR SEL-P
44 CLK CHITTL-N
45 ROLL END-P
54 ADDR1R-N
55 ADDR2R-N
21 RESET-N
R5100
R5101
1K
+5V
Vi1
Vi2
Vi3
SAMPLE END-P
ROLL-P
To (2/2) 16
5A
5B
4A
4B
4C
4G
1A
2A
6D
6C
7E
4B S04
5A S08
5B LS08
1A S02
2A S74(1/2)
4G S74
7E LS374 4B S04
6A S161
4A LS164
6D LS161
6C LS161
5B LS08
1A S02
5B LS08
4B S04
5B LS08
PS500 21 RESET-N
To (2/2) 16

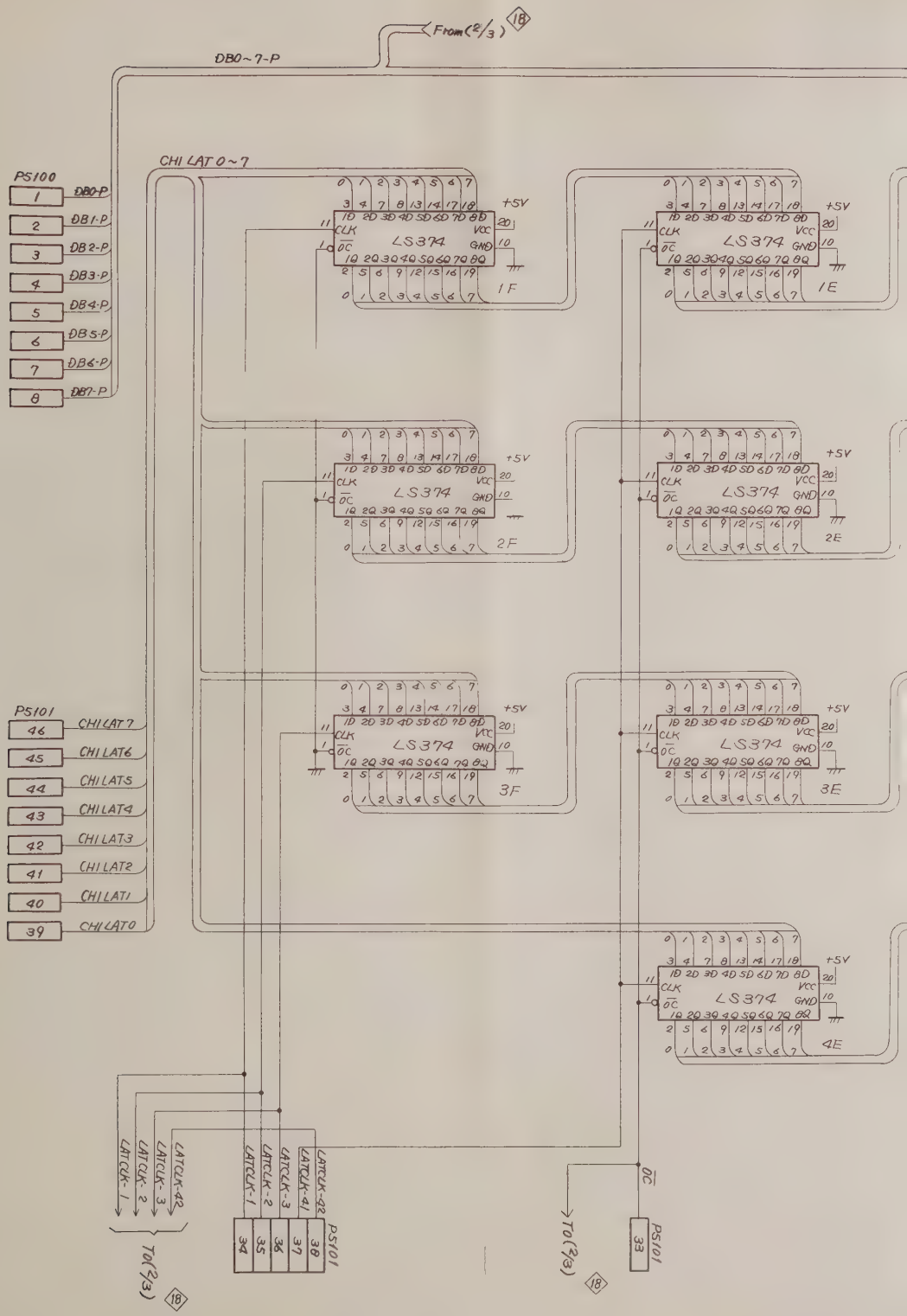


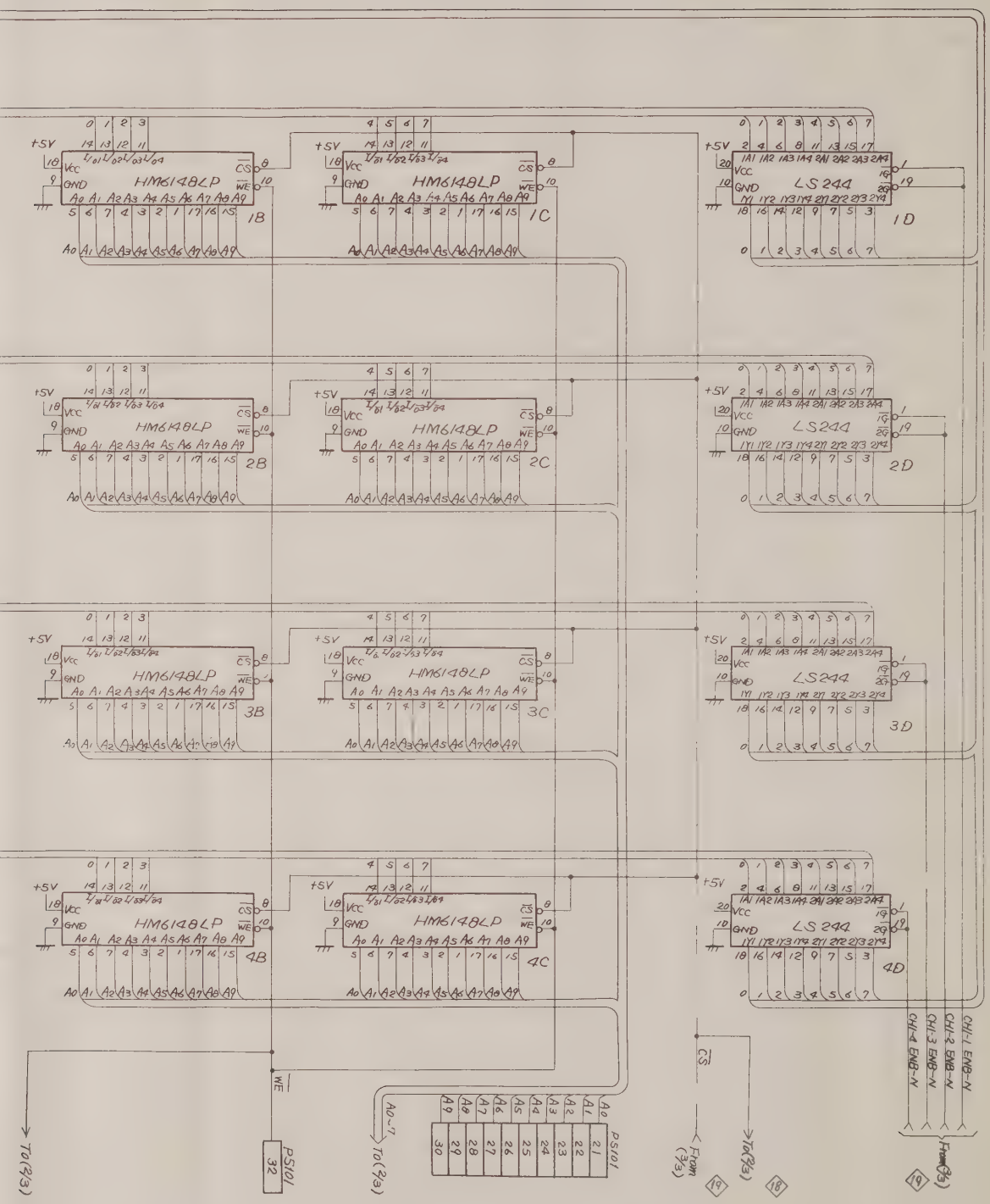
15 TIME BASE & ACQ CONT (PEF-644) 1/2


To(1/2)
DB0~7
+5V
R5502 220
R5503 100
P5500 42 TRIG
Vi3
2B S74
3B S74
1C
2C
Vi4
3E LS 273
DB7
NORM
STAND
ROLL
DB0 START
ROLL-P
TO(1/2)
P5501 10
P5500 50 TIMEB2-N
P5500 53 TIMEB5-N
P5500 27 2.5MHzCK
1E S07
LS164 1D
P5500 41
P5500 39
S/H CLOCK
Vcc X5500
GND
2G
S196 1F
S153 2F
S174 3F
P5500 1 DB0
2 DB1
3 DB2
4 DB3
5 DB4
6 DB5
7 DB6
8 DB7
2E LS 273
OSC&SAMPLING
P5500 57
A SAMPLING MODE +10μS~50μS
P5500 49 TIME B1-N
From (1/2) RESET-N
3D LS 32

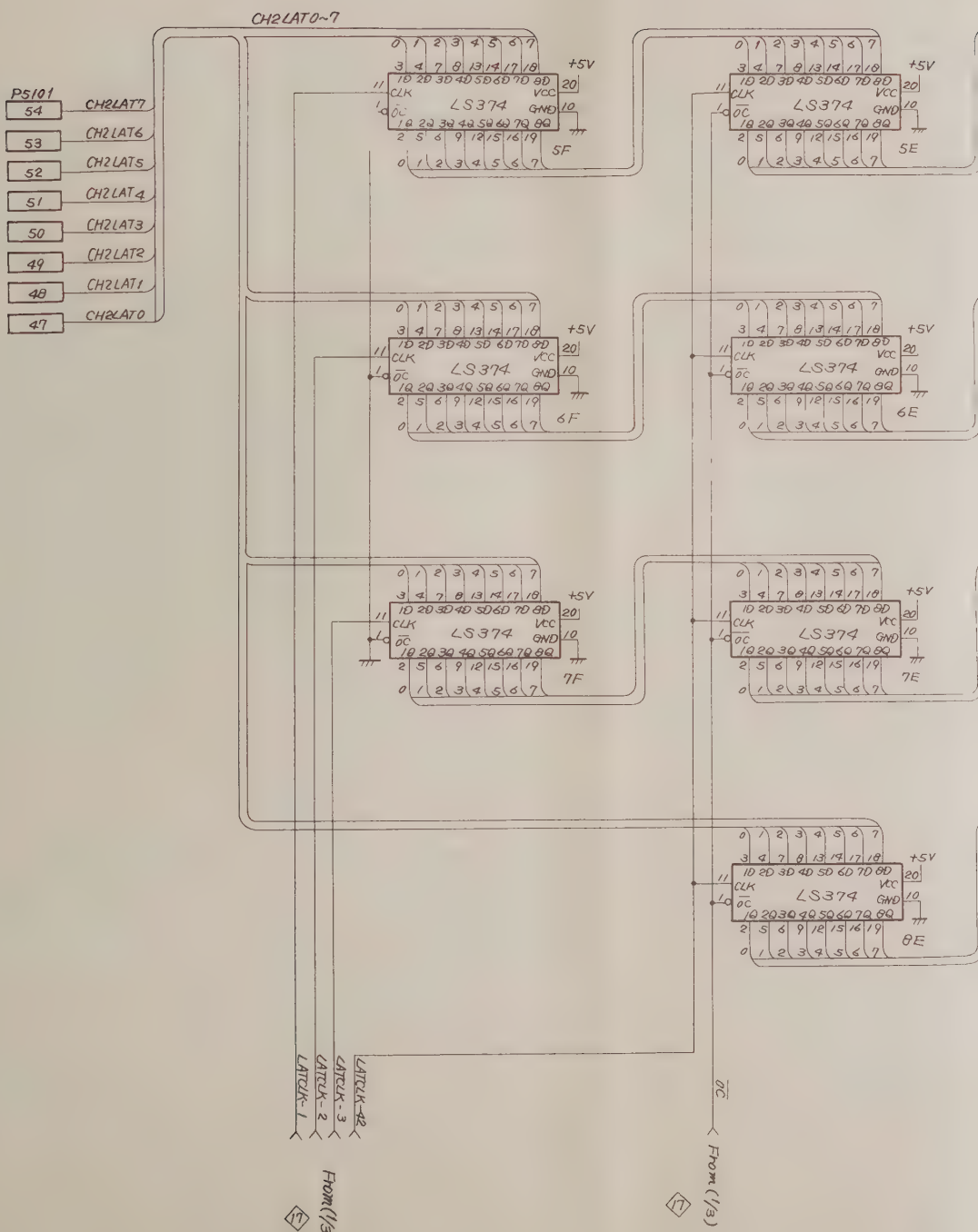


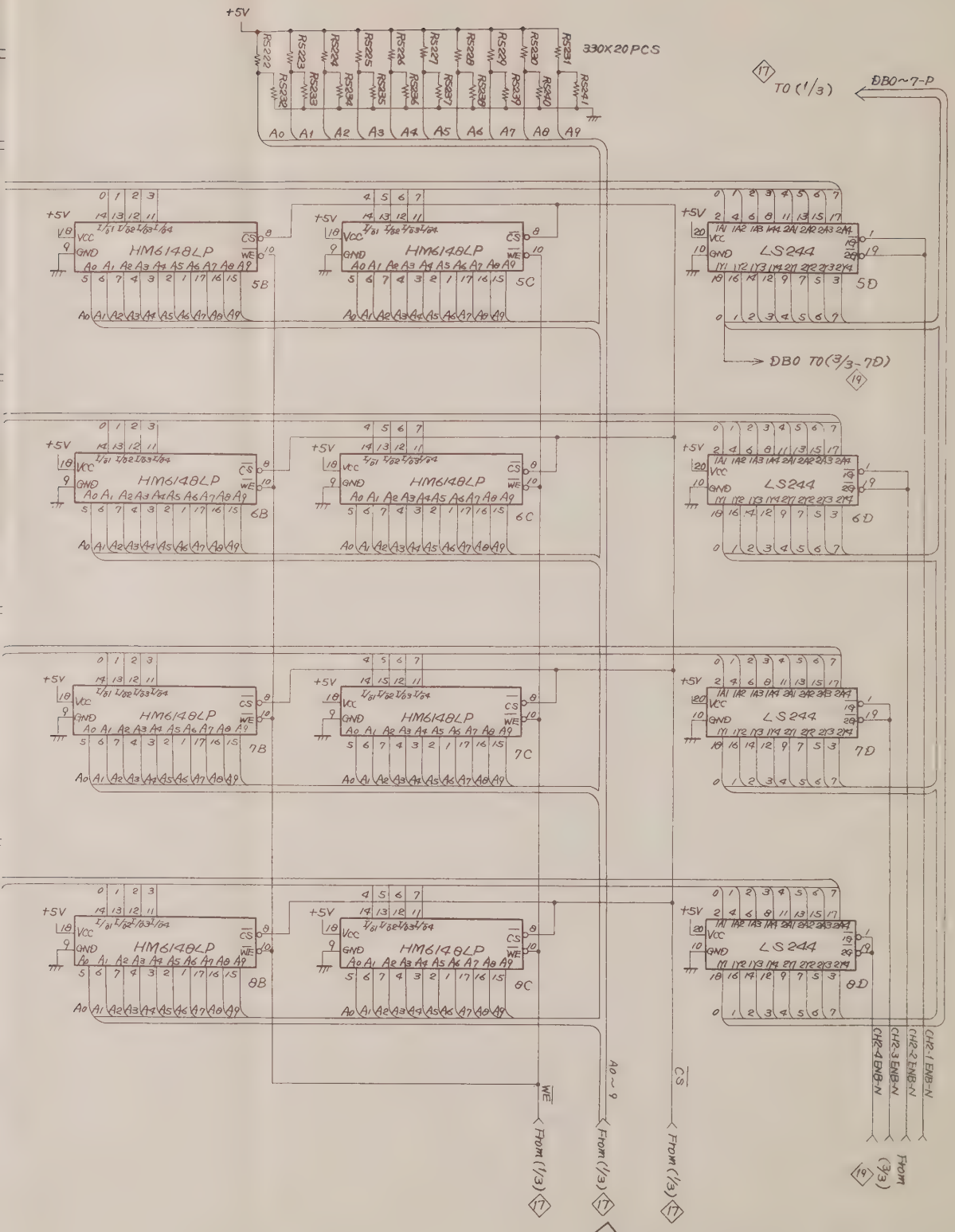
16 TIME BASE & ACQ CONT (PEF-644) 2/2


From (2/3) 18
DB0~7-P
CHI LAT 0~7
PS100
1 DB0-P
2 DB1-P
3 DB2-P
4 DB3-P
5 DB4-P
6 DB5-P
7 DB6-P
8 DB7-P
PS101
46 CHILAT7
45 CHILAT6
44 CHILAT5
43 CHILAT4
42 CHILAT3
41 CHILAT2
40 CHILAT1
39 CHILAT0
LS374
+5V
1F
1E
2F
2E
3F
3E
4E
LATCLK-1
LATCLK-2
LATCLK-3
LATCLK-4
LATCLK-4/2
LATCLK-4/1
PS101 34 35 36 37 38
To (2/3) 18
OC
PS101 33
To (2/3) 18

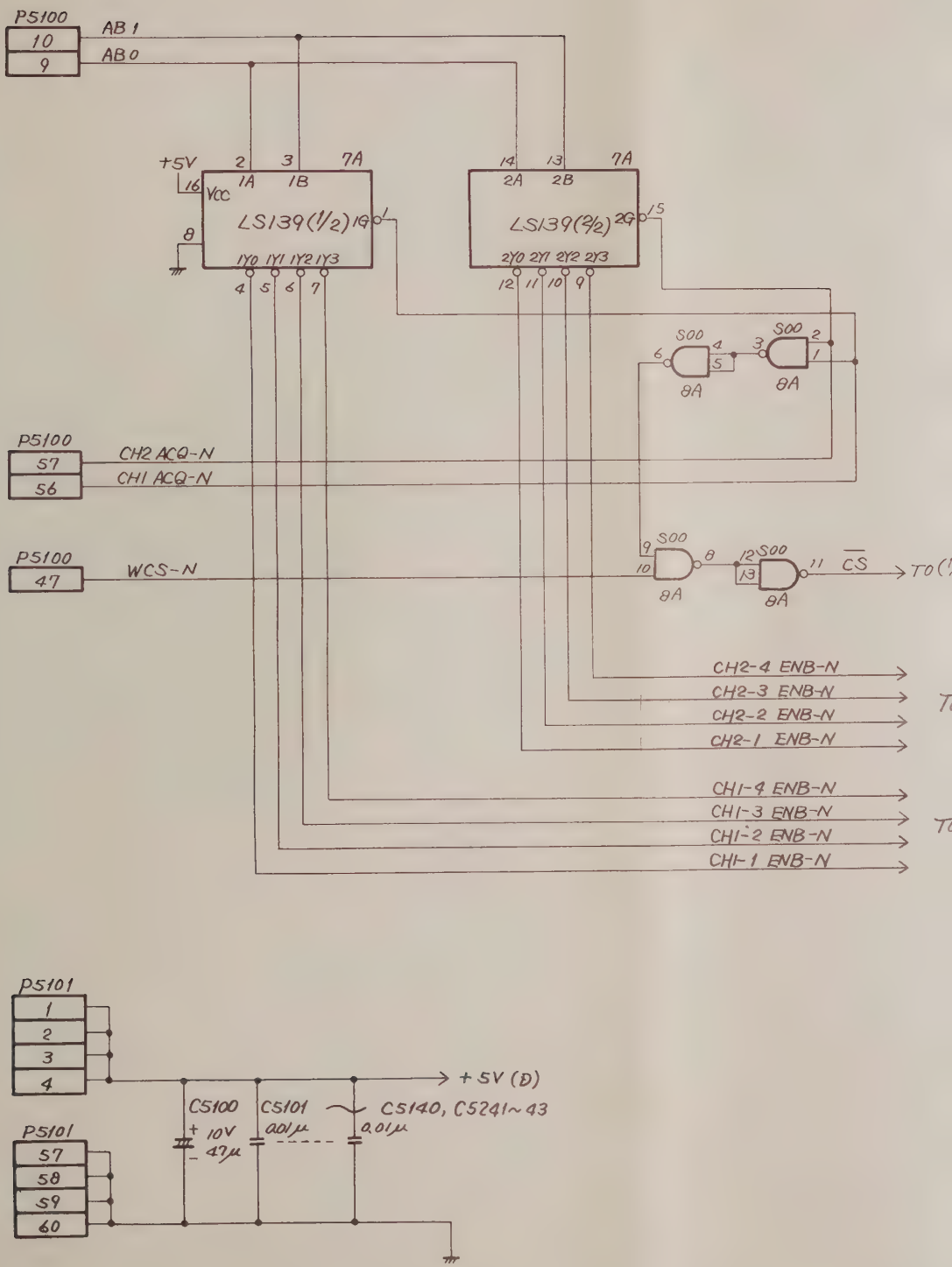


17 ACQ MEMORY (PEF-645) 1/3

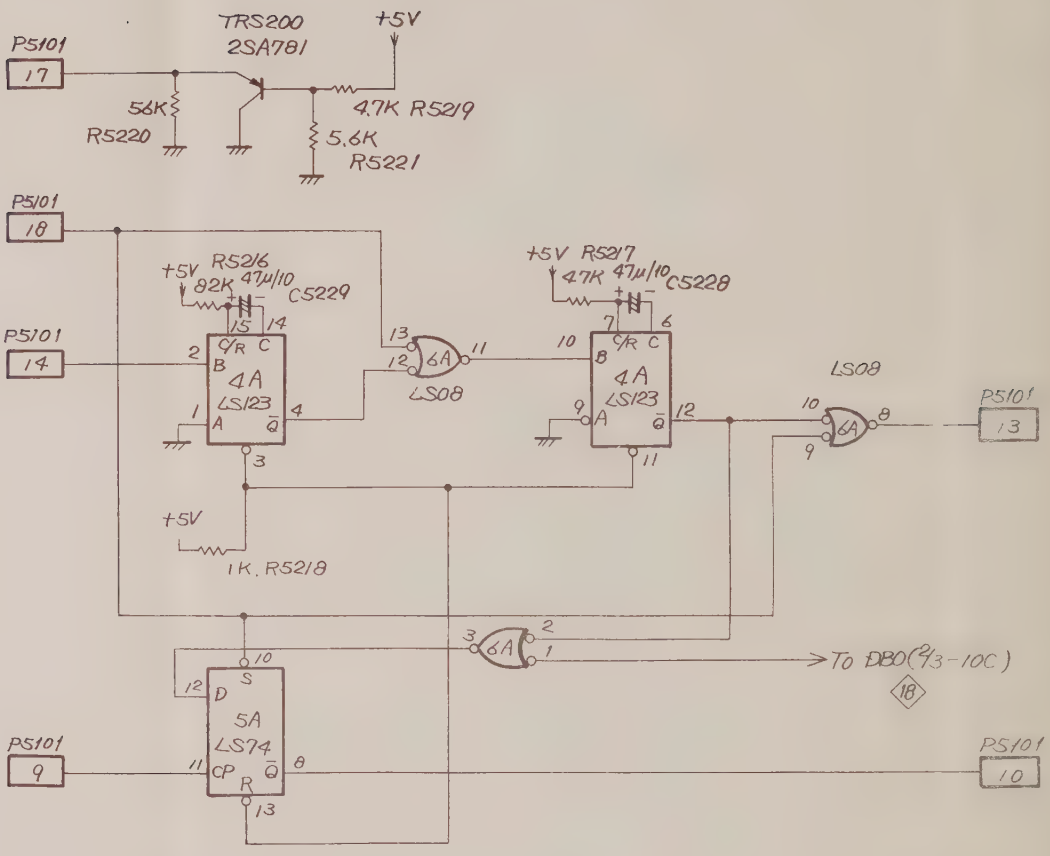

CH2LAT0~7
P5101
54 CH2LAT7
53 CH2LAT6
52 CH2LAT5
51 CH2LAT4
50 CH2LAT3
49 CH2LAT2
48 CH2LAT1
47 CH2LAT0
+5V
LS374
5F
5E
6F
6E
7F
7E
8E
LATCLK-1
LATCLK-2
LATCLK-3
LATCLK-4?
From (1/3)
From (1/3)



18 ACQ MEMORY (PEF-645) 2/3


P5100
10
9
AB 1
AB 0
+5V
16
Vcc
8
1A
1B
2
3
7A
LS139(1/2)
1G
1
1Y0 1Y1 1Y2 1Y3
4 5 6 7
2A
2B
14
13
7A
LS139(2/2)
2G
15
2Y0 2Y1 2Y2 2Y3
12 11 10 9
S00
8A
P5100
57
56
CH2 ACQ-N
CH1 ACQ-N
P5100
47
WCS-N
CS
TO (
CH2-4 ENB-N
CH2-3 ENB-N
CH2-2 ENB-N
CH2-1 ENB-N
CH1-4 ENB-N
CH1-3 ENB-N
CH1-2 ENB-N
CH1-1 ENB-N

P5101
1
2
3
4
+5V (D)
C5100
+ 10V
47μ
C5101
.01μ
C5140, C5241~43
0.01μ
P5101
57
58
59
60

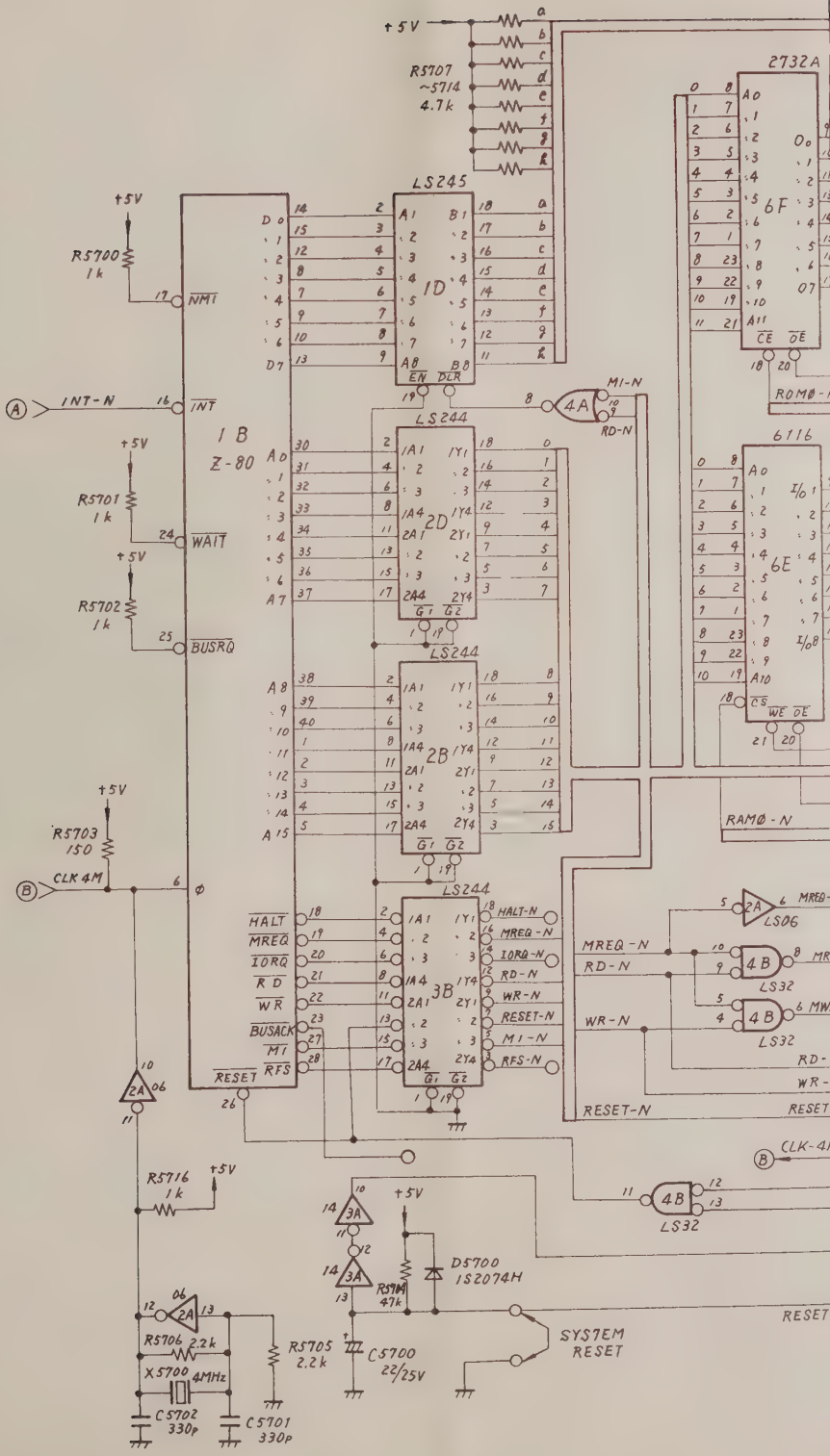


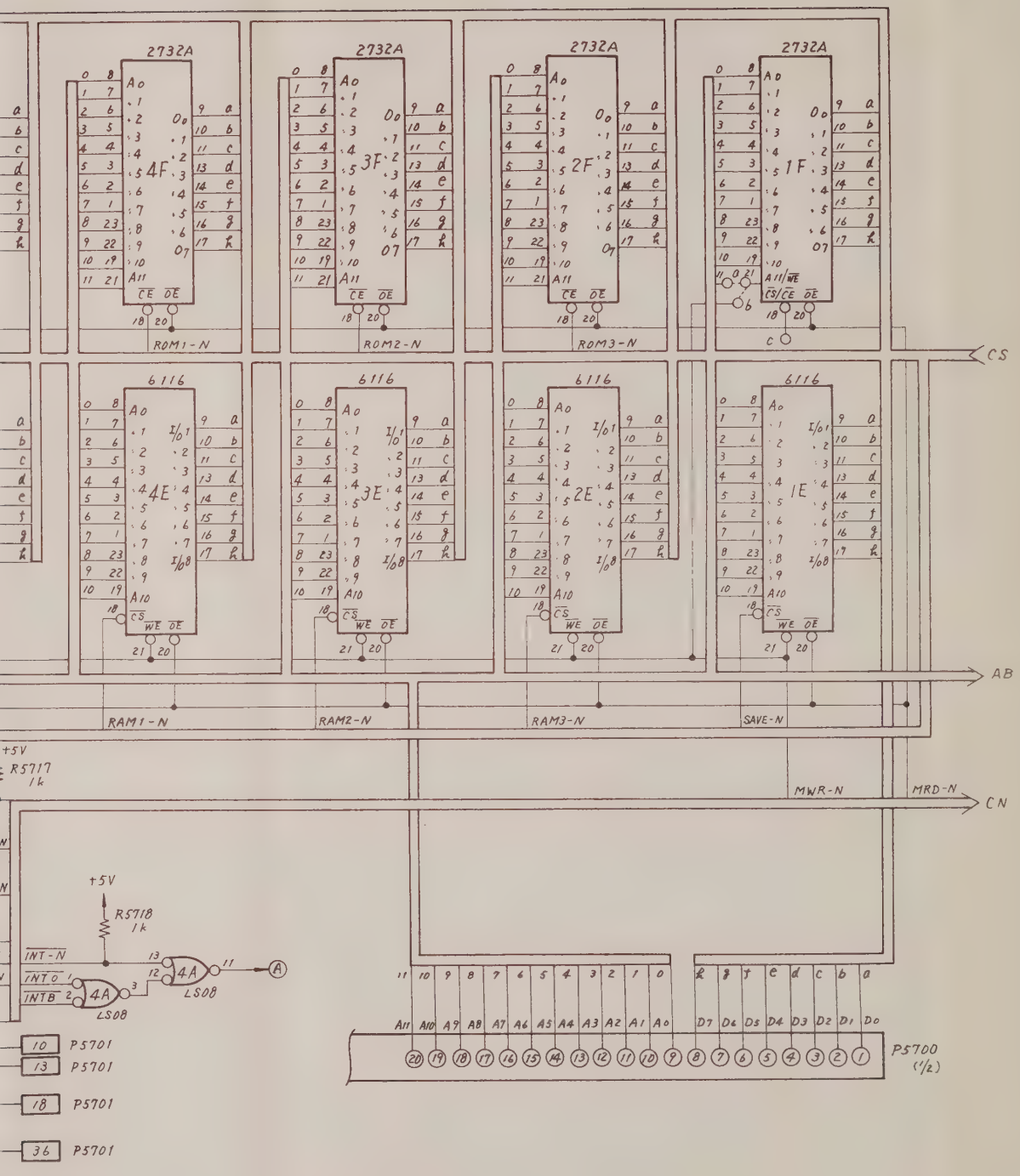
) 17

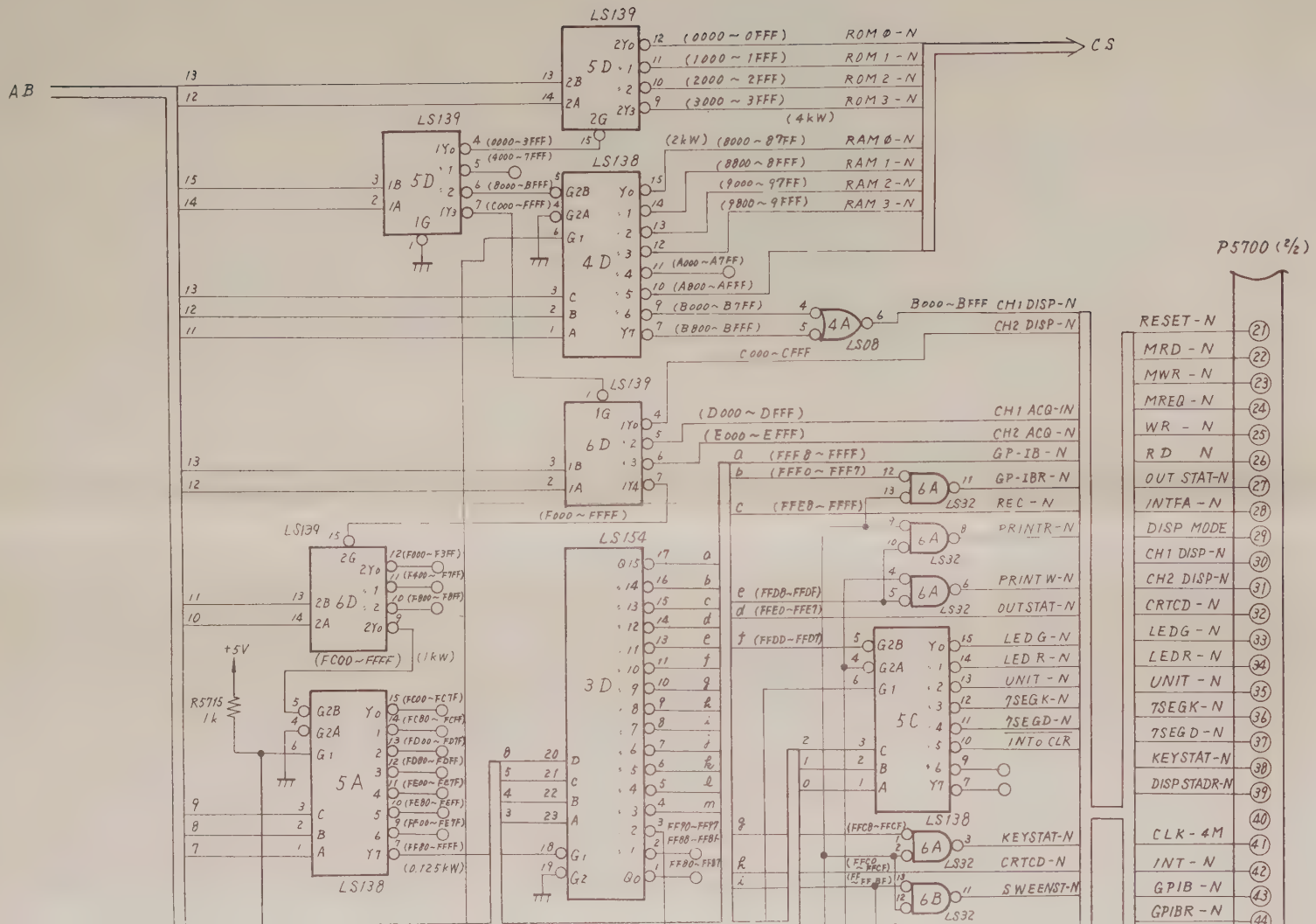
2/3) 18

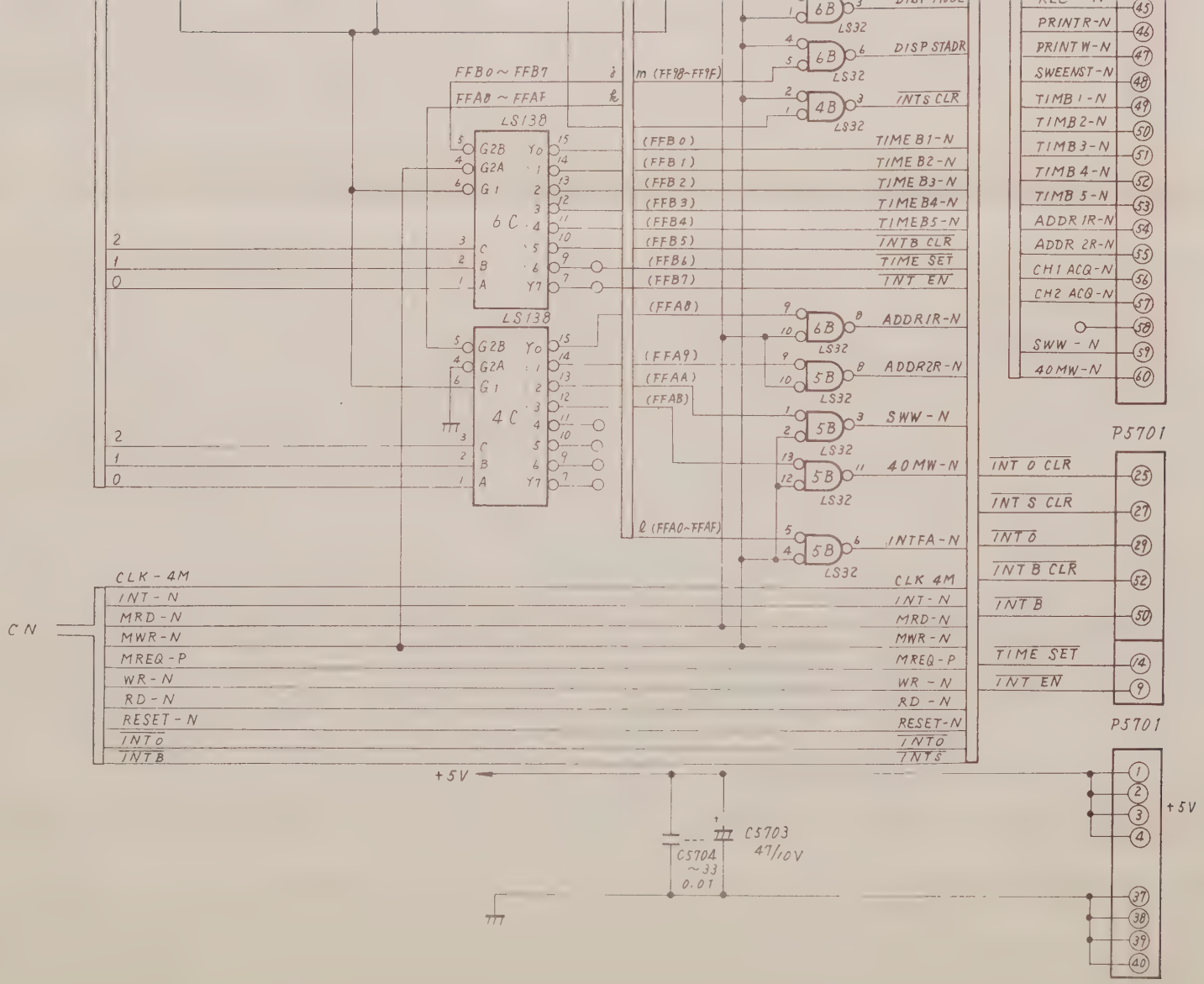
1/3) 17

19 ACQ MEMORY (PEF-645) 3/3

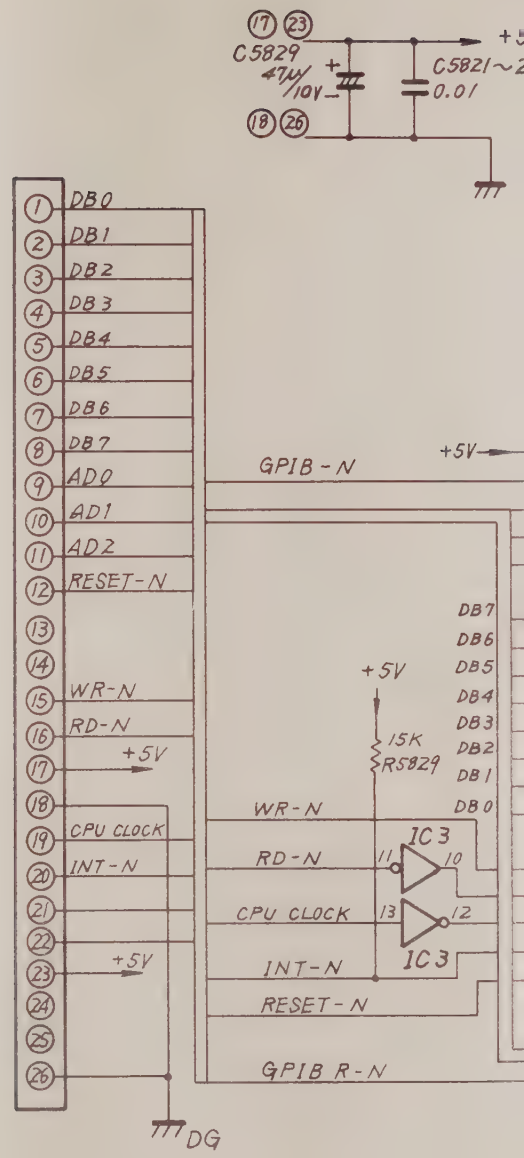

+5V
R5707 ~5714 4.7k
LS245
1D
2732A
6F
R5700 1k
NMI
INT-N
INT
1B Z-80
R5701 1k
WAIT
R5702 1k
BUSRQ
LS244
2D
M1-N
RD-N
6116
6E
RAMØ-N
R5703 150
CLK 4M
Ø
2B
3B
HALT
MREQ
IORQ
RD
WR
BUSACK
M1
RFS
RESET
HALT-N
MREQ-N
IORQ-N
RD-N
WR-N
RESET-N
M1-N
RFS-N
LS06
LS32
R5716 1k
D5700 1S2074H
R5704 47k
SYSTEM RESET
R5706 2.2k
R5705 2.2k
X5700 4MHz
C5700 22/25V
C5702 330p
C5701 330p

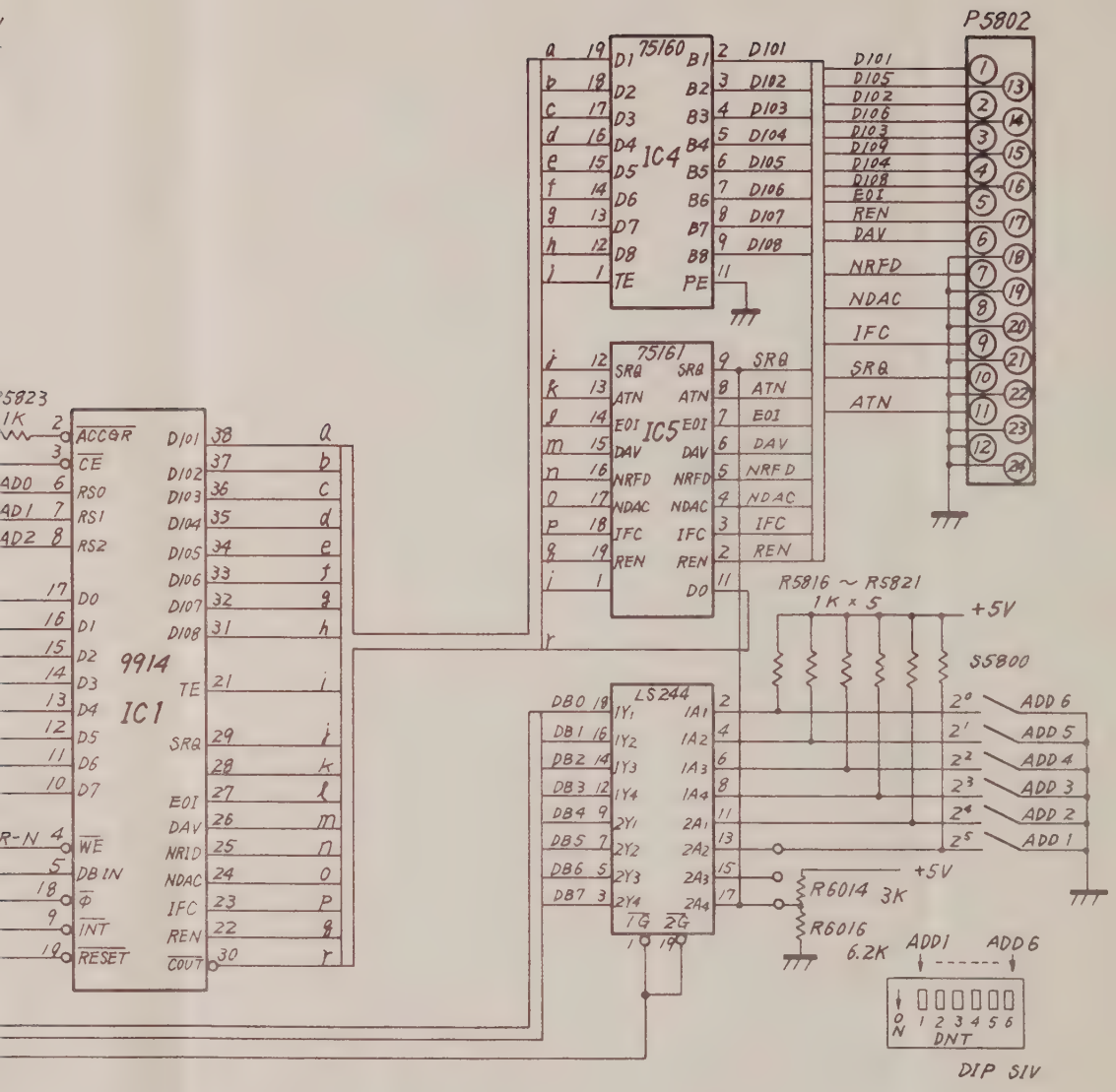

2732A
4F
3F
2F
1F
ROM1-N
ROM2-N
ROM3-N
6116
4E
3E
2E
1E
RAM1-N
RAM2-N
RAM3-N
SAVE-N
CS
AB
CN
MWR-N
MRD-N
+5V
R5717
1k
R5718
1k
INT-N
INT0
INTB
4A
LS08
P5701
P5700
(1/2)


AB
CS
LS139
5D
2Y0
2Y3
2B
2A
2G
(0000~0FFF) ROM0-N
(1000~1FFF) ROM1-N
(2000~2FFF) ROM2-N
(3000~3FFF) ROM3-N
(4kW)
LS139
1D
1Y0
1Y3
1B
1A
1G
(0000~3FFF)
(4000~7FFF)
(8000~BFFF)
(C000~FFFF)
LS138
4D
G2B
G2A
G1
Y0
Y7
(2kW) (8000~87FF) RAM0-N
(8800~8FFF) RAM1-N
(9000~97FF) RAM2-N
(9800~9FFF) RAM3-N
(A000~A7FF)
(A800~AFFF)
(B000~B7FF)
(B800~BFFF)
4A
LS08
B000~BFFF CH1DISP-N
CH2 DISP-N
C000~CFFF
LS139
6D
(D000~DFFF) CH1 ACQ-IN
(E000~EFFF) CH2 ACQ-N
(F000~FFFF)
LS139
6D
2G
2B
2A
(F000~F3FF)
(F400~F7FF)
(F800~FBFF)
(FC00~FFFF) (1kW)
LS154
3D
(FFD8~FFDF) GP-IB-N
(FFE0~FFE7) GP-IBR-N
(FFE8~FFEF) REC-N
6A
LS32
PRINTR-N
PRINTW-N
OUTSTAT-N
LS138
5C
LED G-N
LED R-N
UNIT-N
7SEGK-N
7SEGD-N
INTo CLR
(FFC8~FFCF) KEYSTAT-N
(FFD0~FFD7) CRTCD-N
(FFD8~FFDF) SWEENST-N
6B
LS32
+5V
R5715
1k
LS138
5A
(FC00~FC7F)
(FC80~FCFF)
(FD00~FD7F)
(FD80~FDFF)
(FE00~FE7F)
(FE80~FEFF)
(FF00~FF7F)
(FF80~FFFF)
(0.125kW)
FF90~FF97
FF88~FF8F
FF80~FF87
P5700 (2/2)
RESET-N 21
MRD-N 22
MWR-N 23
MREQ-N 24
WR-N 25
RD N 26
OUT STAT-N 27
INTFA-N 28
DISP MODE 29
CH1 DISP-N 30
CH2 DISP-N 31
CRTCD-N 32
LEDG-N 33
LEDR-N 34
UNIT-N 35
7SEGK-N 36
7SEGD-N 37
KEYSTAT-N 38
DISPSTADR-N 39
40
CLK-4M 41
INT-N 42
GPIB-N 43
GPIBR-N 44

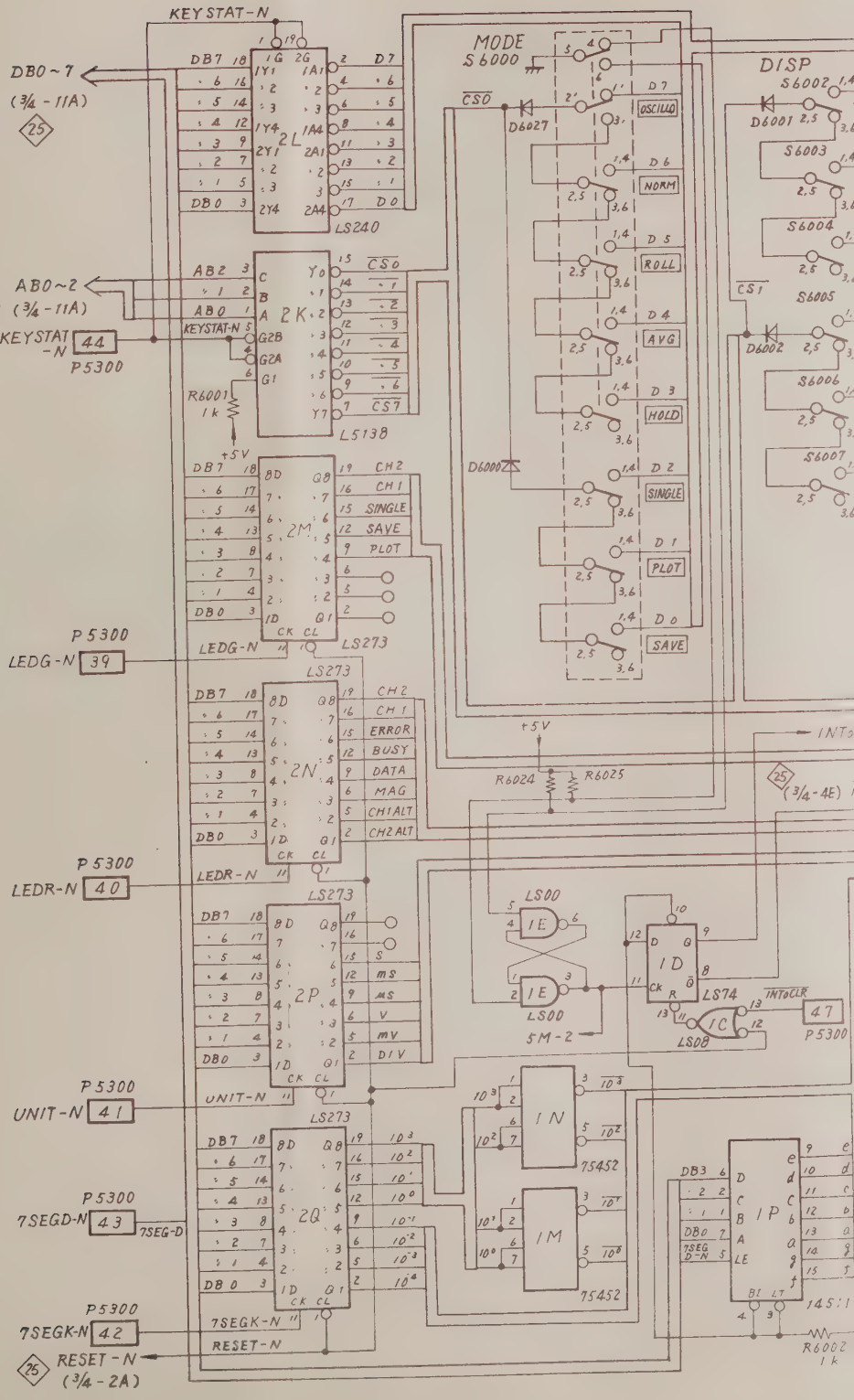


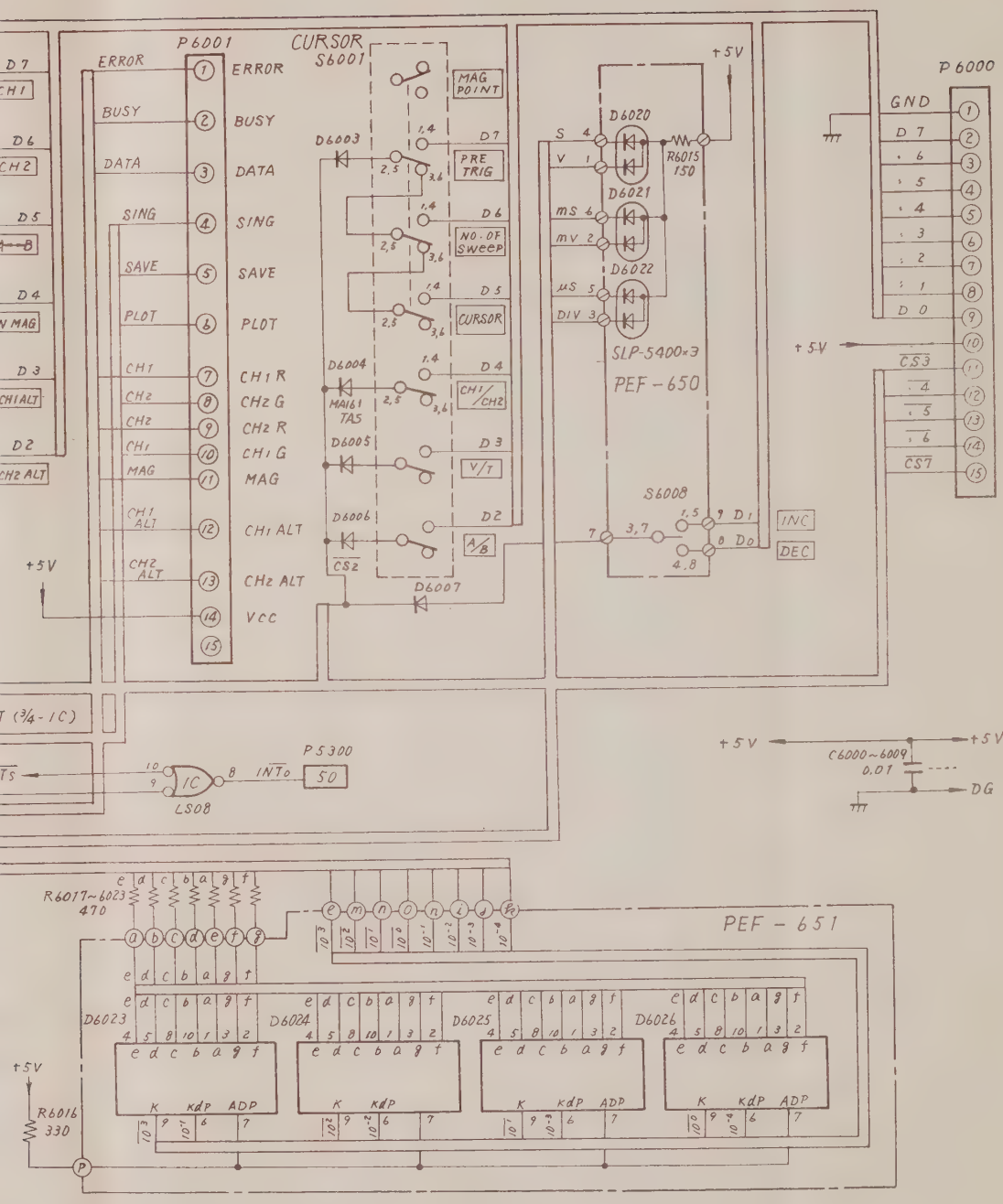
21 MICRO PROCESSOR (PEF-646) 2/2


17 23
C5829
47W/10V
18 26
C5821~2
0.01
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
AD0
AD1
AD2
RESET-N
WR-N
RD-N
+5V
CPU CLOCK
INT-N
+5V
GPIB-N
+5V
DB7
DB6
DB5
DB4
DB3
DB2
DB1
DB0
+5V
15K
RS829
WR-N
IC3
RD-N
11
10
CPU CLOCK
13
12
IC3
INT-N
RESET-N
GPIB R-N
DG

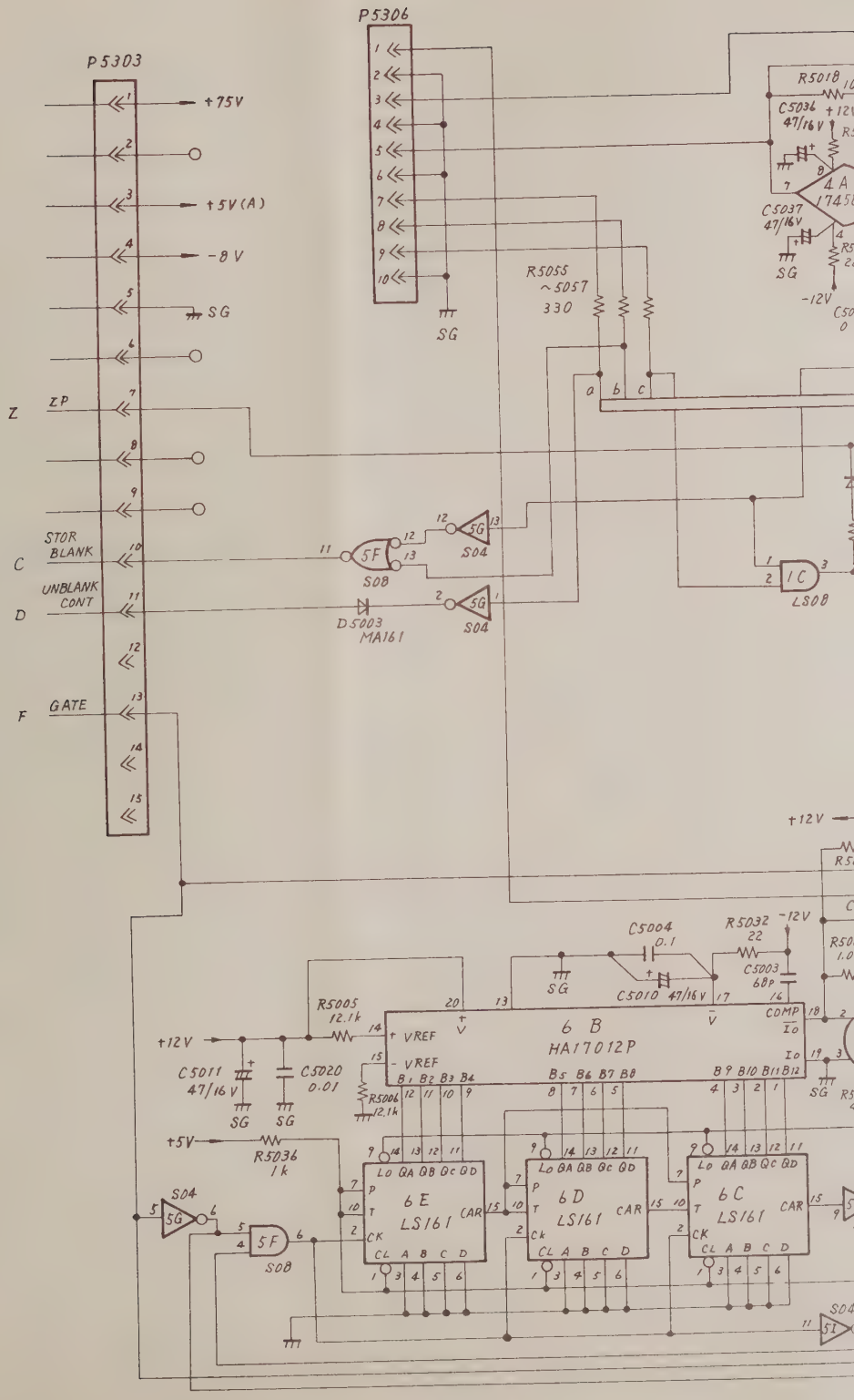


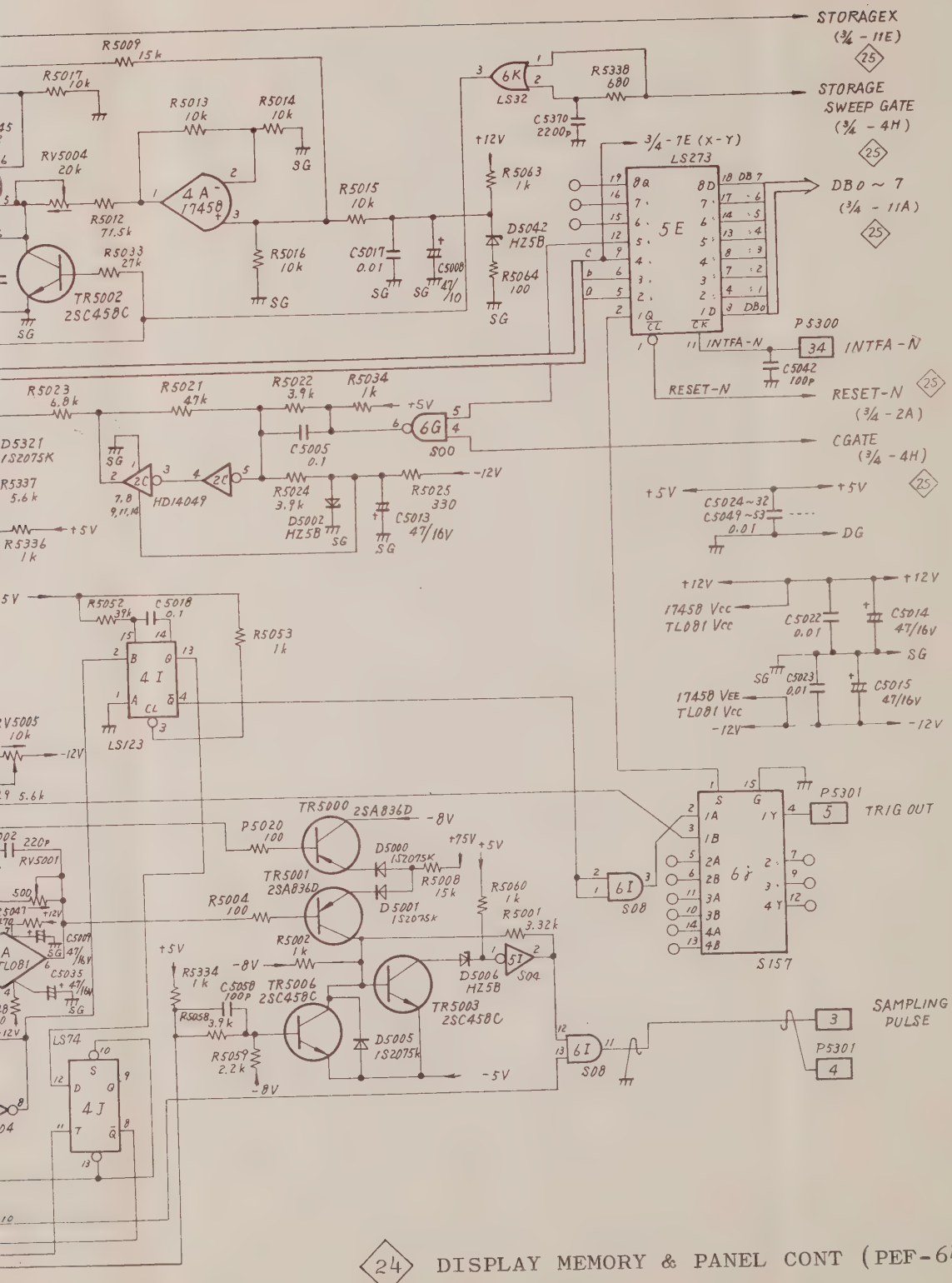
<22> GP-IB (PEF-647) (Option)


KEYSTAT-N
DB0~7
(3/4 - 11A)
25
2L
LS240
DB7
DB0
1G
2G
1Y1
1Y4
2Y1
2Y4
1A1
1A4
2A1
2A4
D7
D0
ABO~2
(3/4 - 11A)
KEYSTAT -N
44
P5300
2K
LS138
AB2
ABO
C
B
A
G2B
G2A
G1
Y0
Y7
CS0
CS7
R6001
1k
+5V
2M
LS273
8D
1D
CK
CL
Q8
Q1
CH2
CH1
SINGLE
SAVE
PLOT
LEDG-N
39
2N
ERROR
BUSY
DATA
MAG
CH1ALT
CH2ALT
LEDR-N
40
2P
S
ms
V
mV
DIV
UNIT-N
41
2Q
10³
10²
10¹
10⁰
10⁻¹
10⁻²
10⁻³
10⁻⁴
7SEGD-N
43
7SEG-D
7SEGK-N
42
RESET-N
(3/4 - 2A)
MODE
S6000
CS0
D6027
OSCILLO
NORM
ROLL
AVG
HOLD
SINGLE
PLOT
SAVE
D6000
DISP
S6002
D6001
S6003
S6004
CS1
S6005
D6002
S6006
S6007
R6024
R6025
+5V
INT
(3/4-4E)
LS00
1E
5M-2
1D
LS74
1C
LS08
INTOCLR
47
P5300
1N
1M
75452
1P
145:1
DB3
DB0
7SEG D-N
R6002
1k

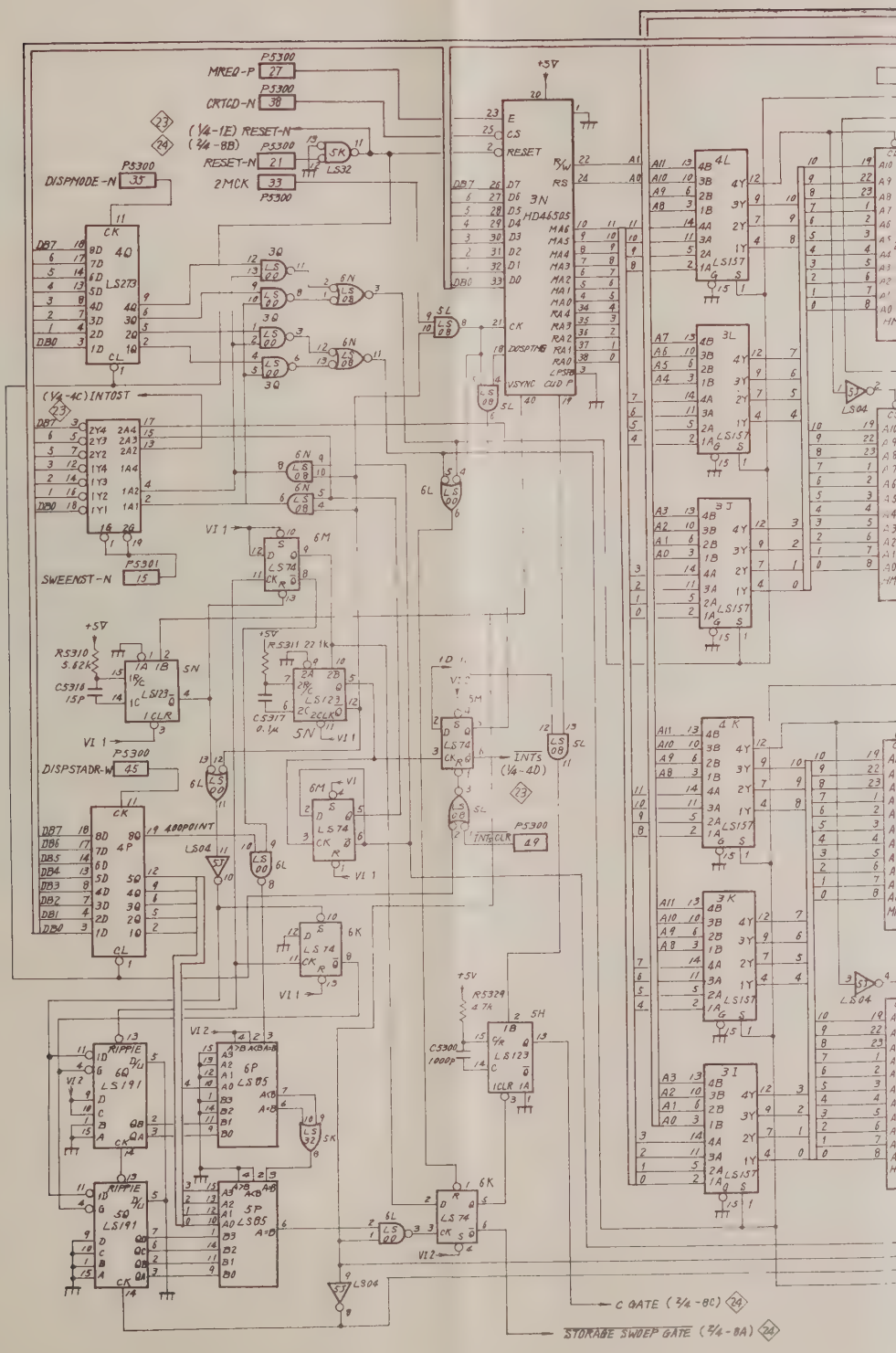


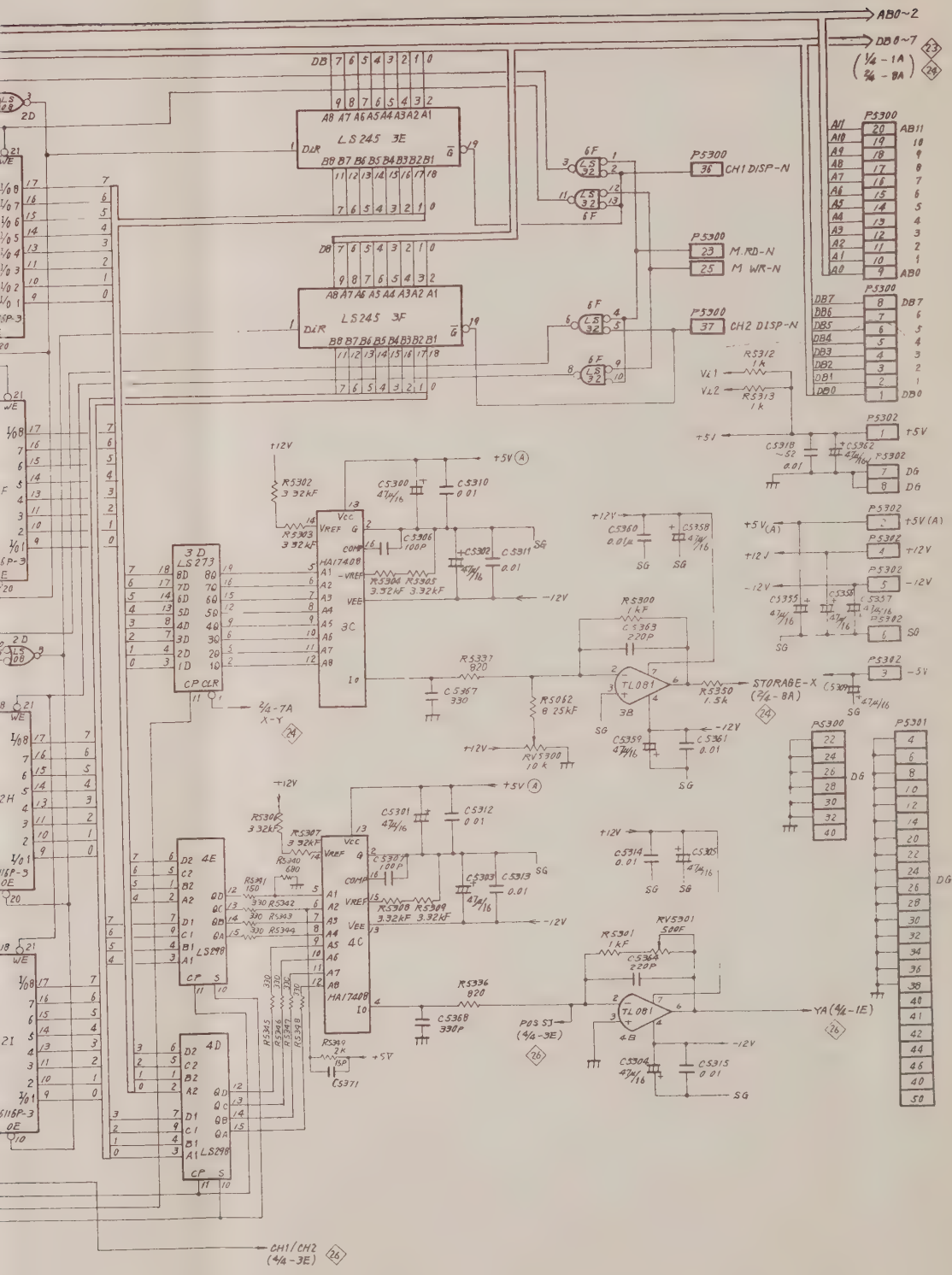
Diodes : 1S2075K T-D Unless otherwise noted


P5306
P5303
+75V
+5V(A)
-8V
SG
ZP
STOR BLANK
UNBLANK CONT
GATE
Z
C
D
F
R5055 ~5057 330
SG
-12V
5F S08
S04
D5003 MA161
1C LS08
+12V
C5004 0.1
R5032 22
C5003 68P
C5010 47/16V
R5005 12.1k
6B HA17012P
VREF
B1 B2 B3 B4
B5 B6 B7 B8
B9 B10 B11 B12
COMP
C5011 47/16V
C5020 0.01
R5006 12.1k
+5V
R5036 1k
6E LS161
6D LS161
6C LS161
LO QA QB QC QD
CAR
CK
CL A B C D

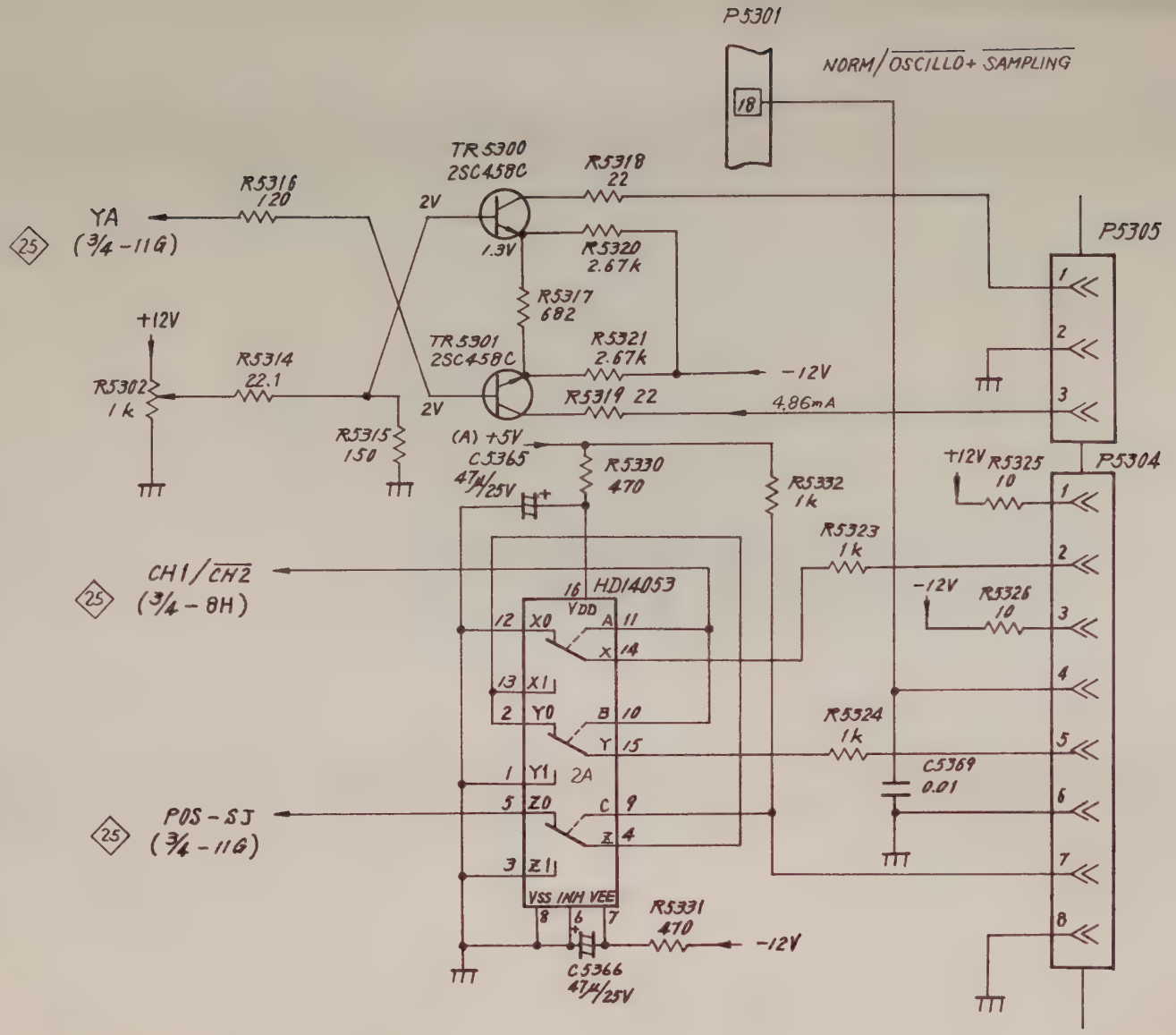


24 DISPLAY MEMORY & PANEL CONT (PEF-648) 2/4

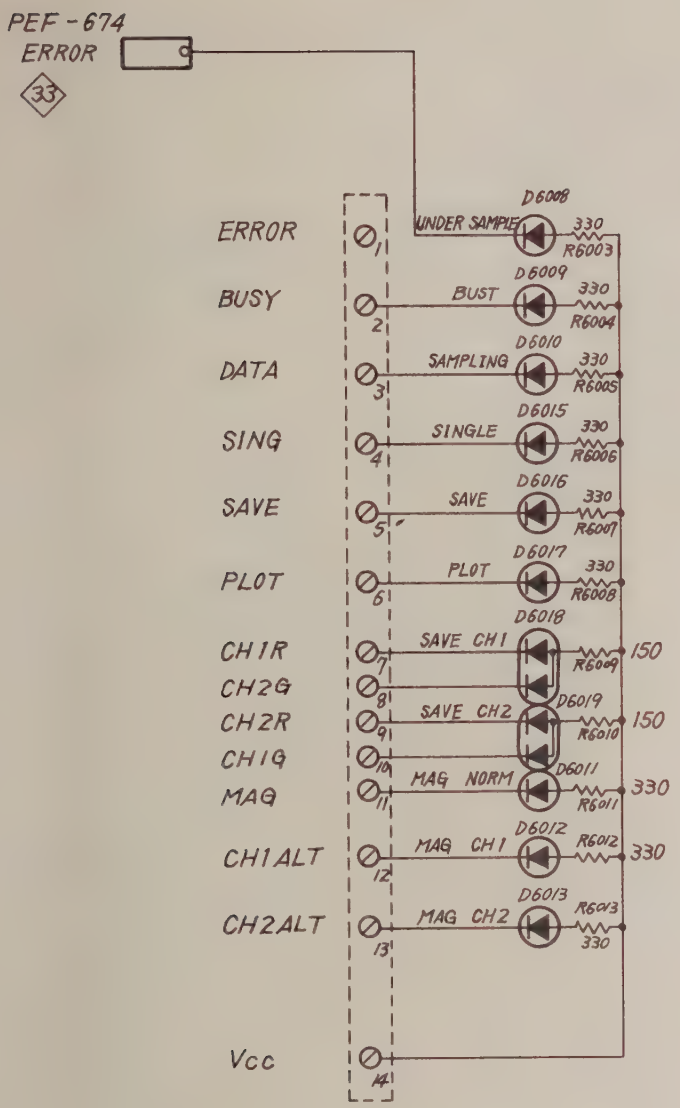

MREQ-P
CRTCD-N
(¼-1E) RESET-N
(¾-8B) RESET-N
2MCK
DISPMODE-N
(¼-4C) INTOST
SWEENST-N
DISPSTADR-W
INTS (¼-4D)
400POINT
C GATE (¾-8C)
STORAGE SWEEP GATE (¾-8A)



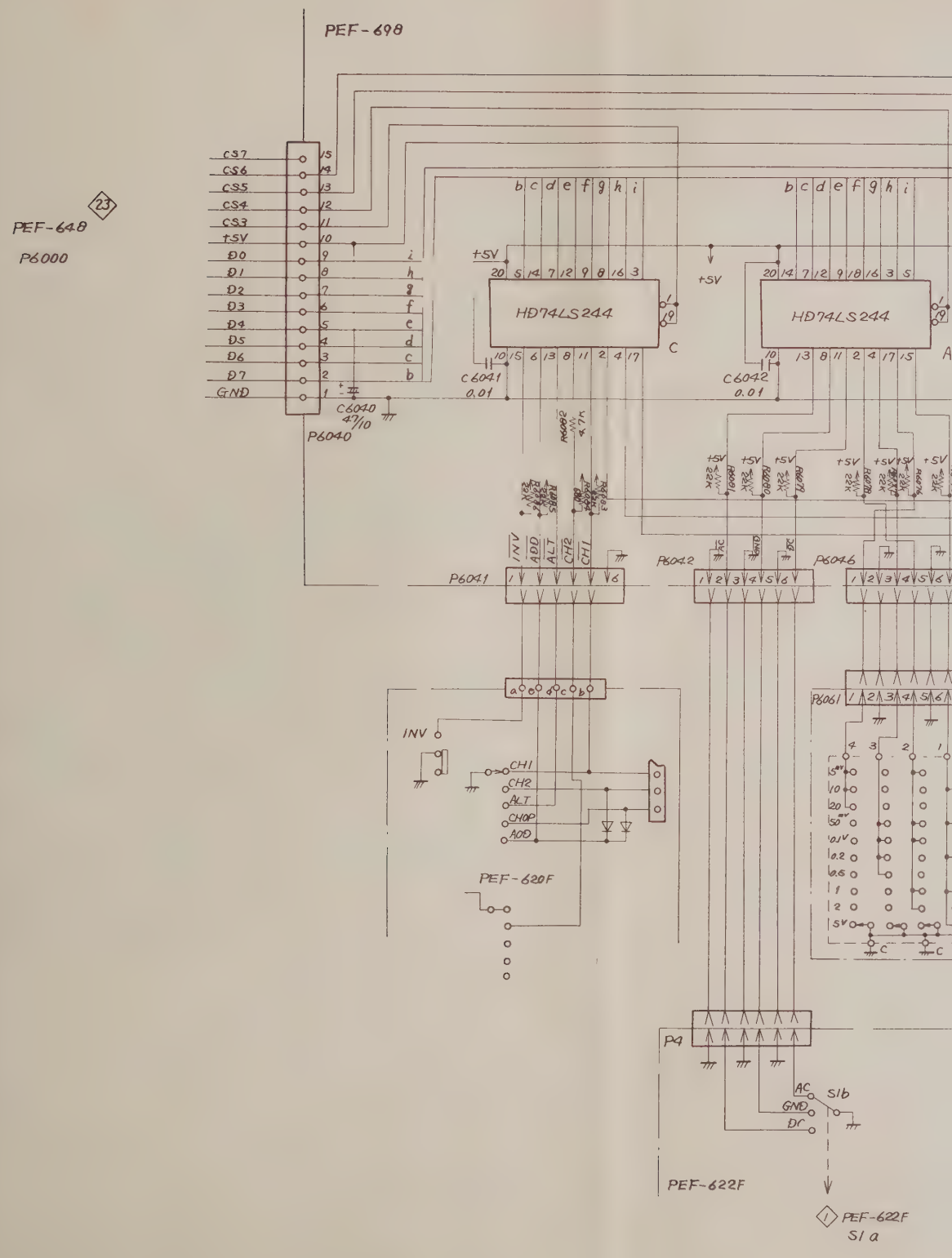
25 DISPLAY MEMORY & PANEL CONT (PEF-648) 3/4

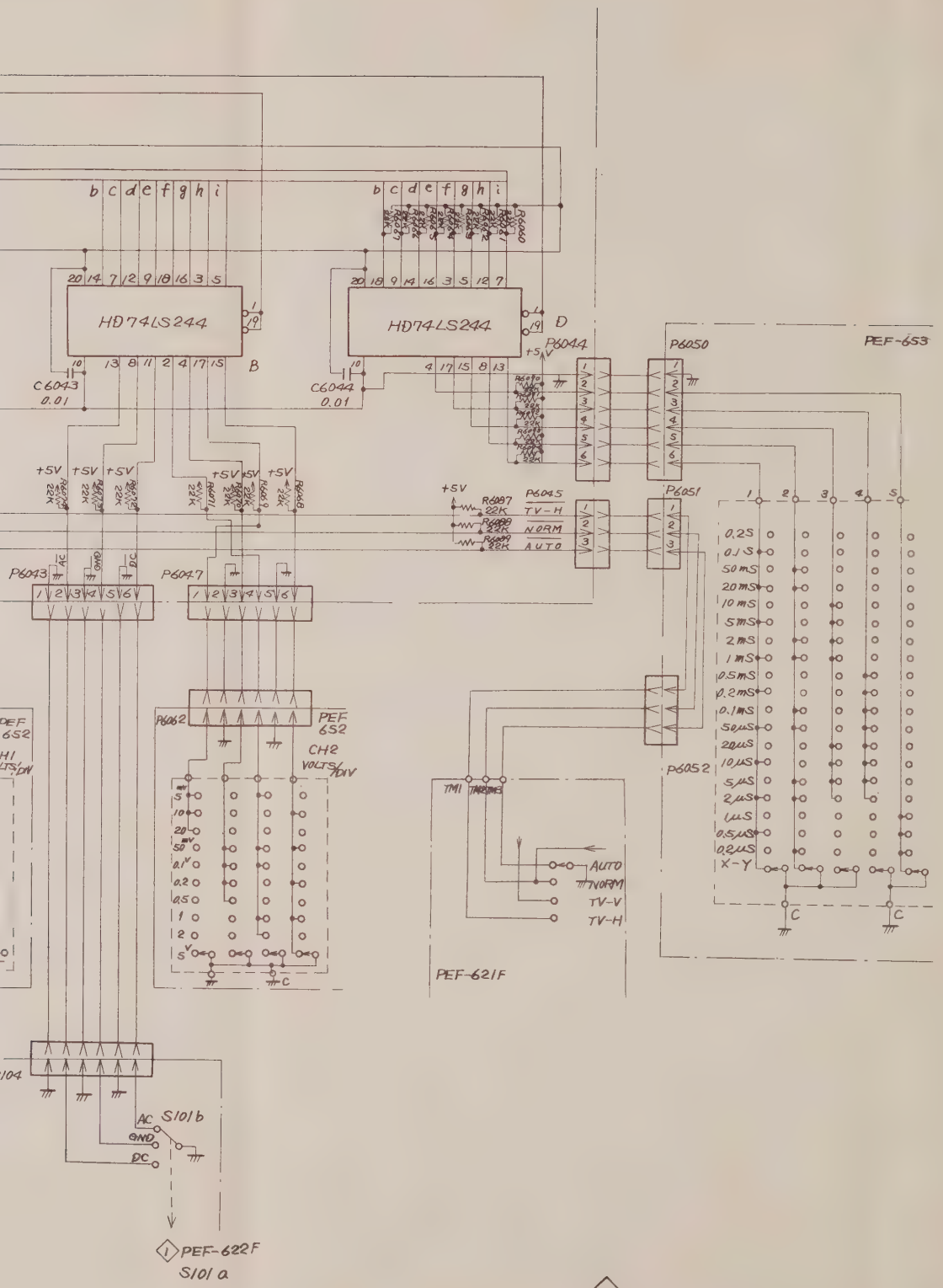


26 DISPLAY MEMORY & PANEL CONT (PEF-648) 4/4

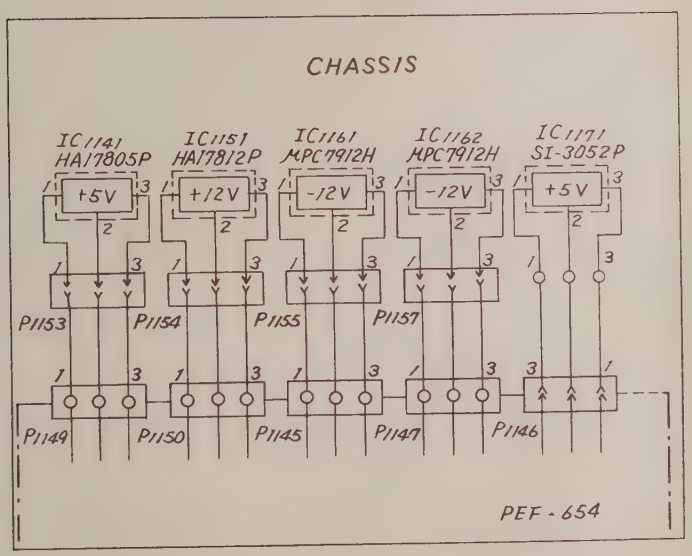


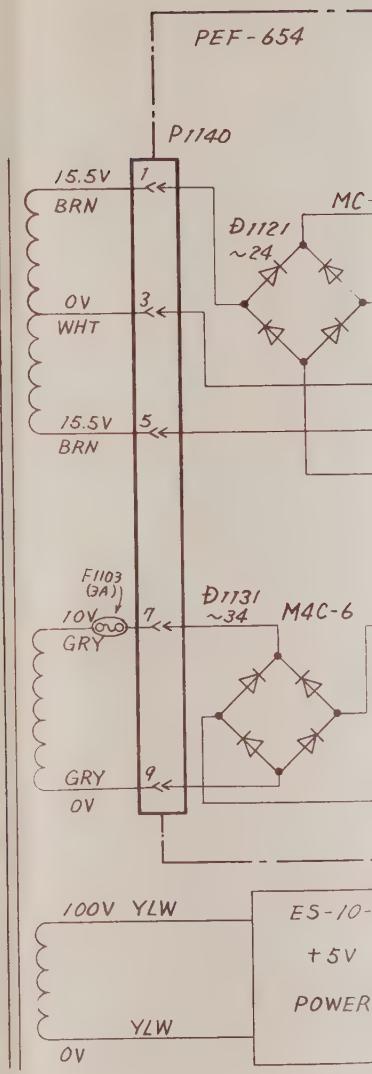
27 LED CIRCUIT (PEF-649)

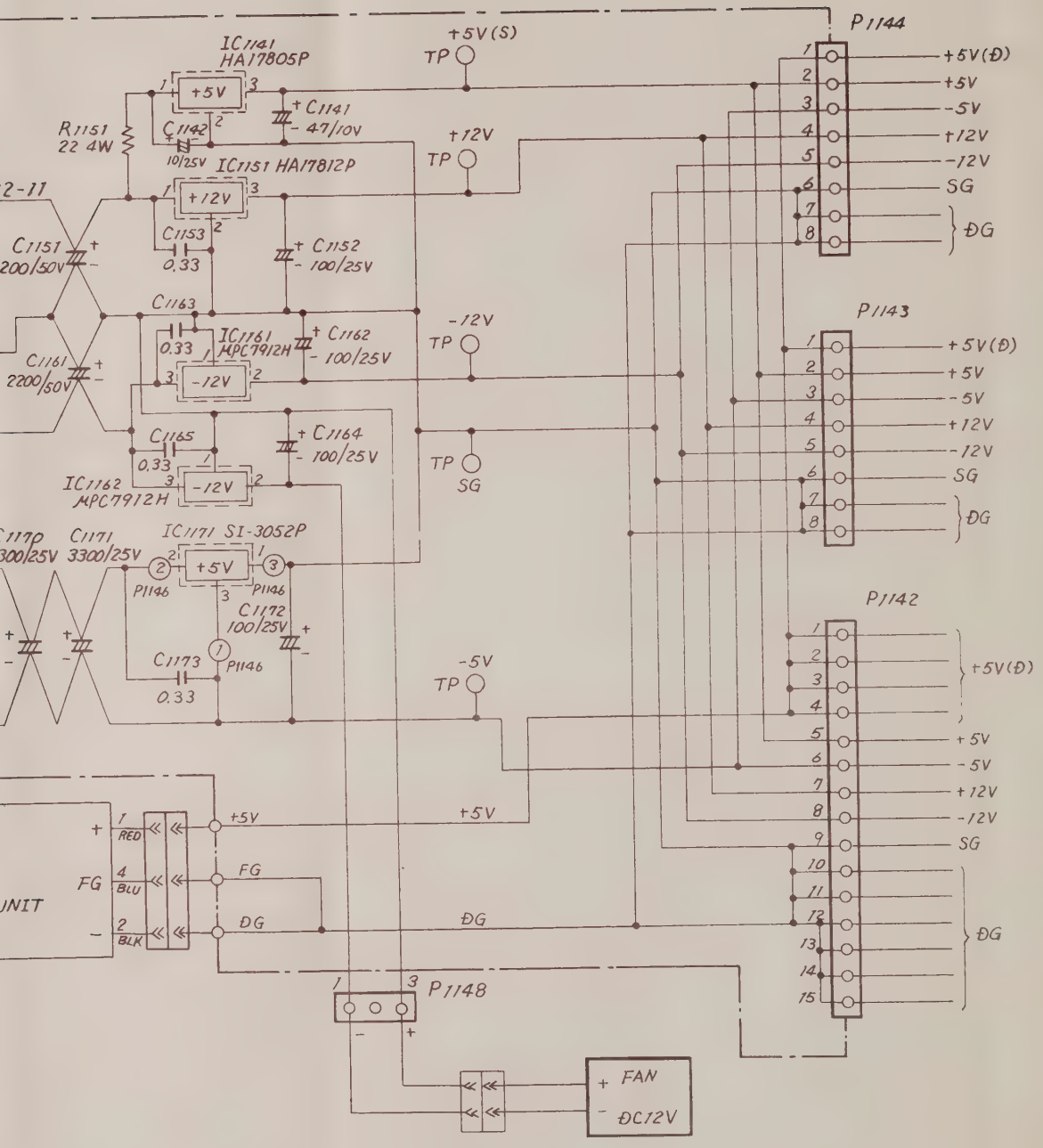

PEF-698
PEF-648
P6000
P6040
HD74LS244
HD74LS244
C6041
0.01
C6042
0.01
C6040
47/10
P6041
P6042
P6046
P6061
INV
CH1
CH2
ALT
CHOP
ADD
PEF-620F
P4
AC
GND
DC
S1b
PEF-622F
PEF-622F
S1a



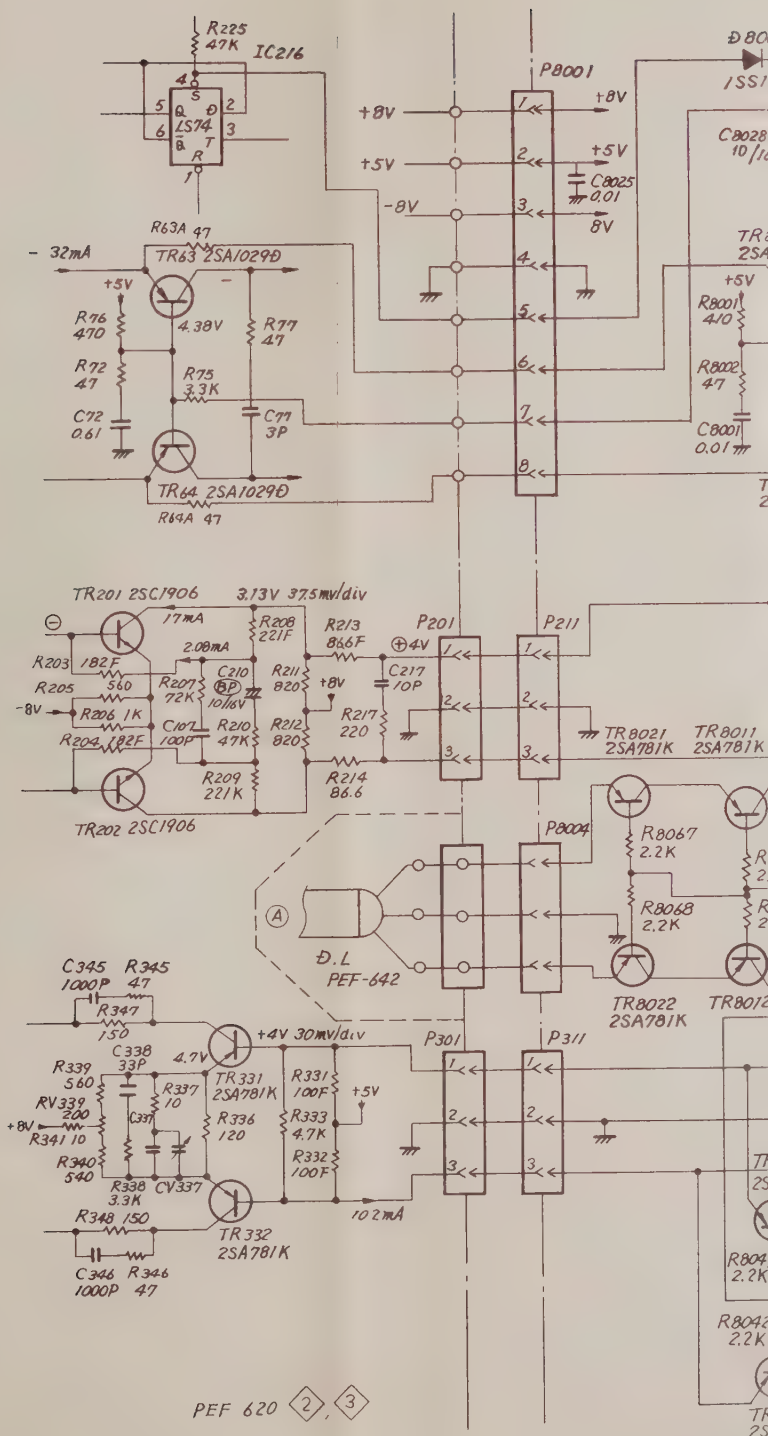
28 SW CONT CIRCUIT (PEF-698)

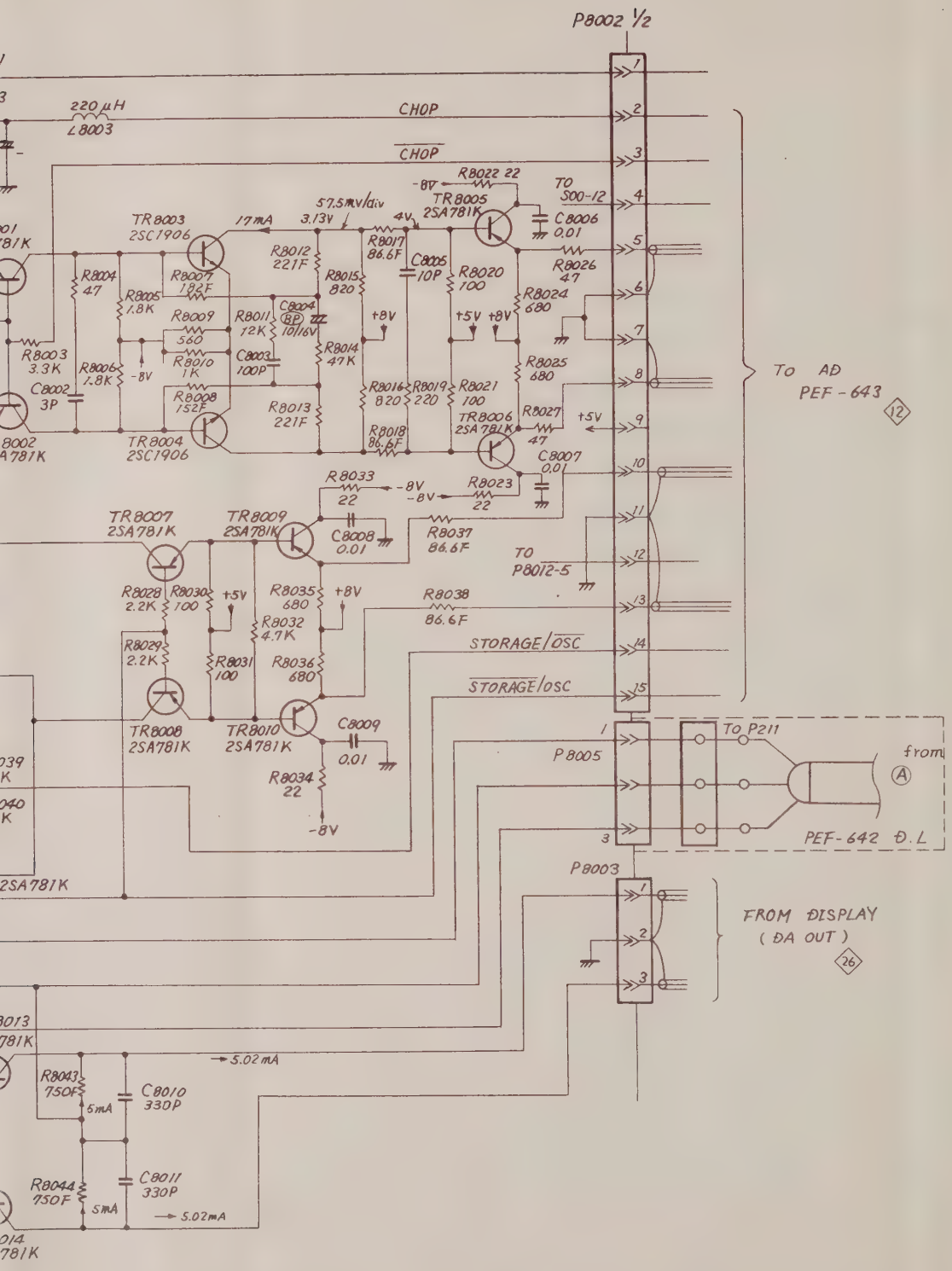

CHASSIS
IC1141
HA17805P
IC1151
HA17812P
IC1161
MPC7912H
IC1162
MPC7912H
IC1171
SI-3052P
+5V
+12V
-12V
-12V
+5V
P1153
P1154
P1155
P1157
P1149
P1150
P1145
P1147
P1146
PEF-654


PEF-654
P1140
15.5V
BRN
0V
WHT
15.5V
BRN
D1121
~24
MC-
F1103
(GA)
10V
GRY
D1131
~34
M4C-6
GRY
0V
100V YLW
YLW
0V
ES-10-
+5V
POWER

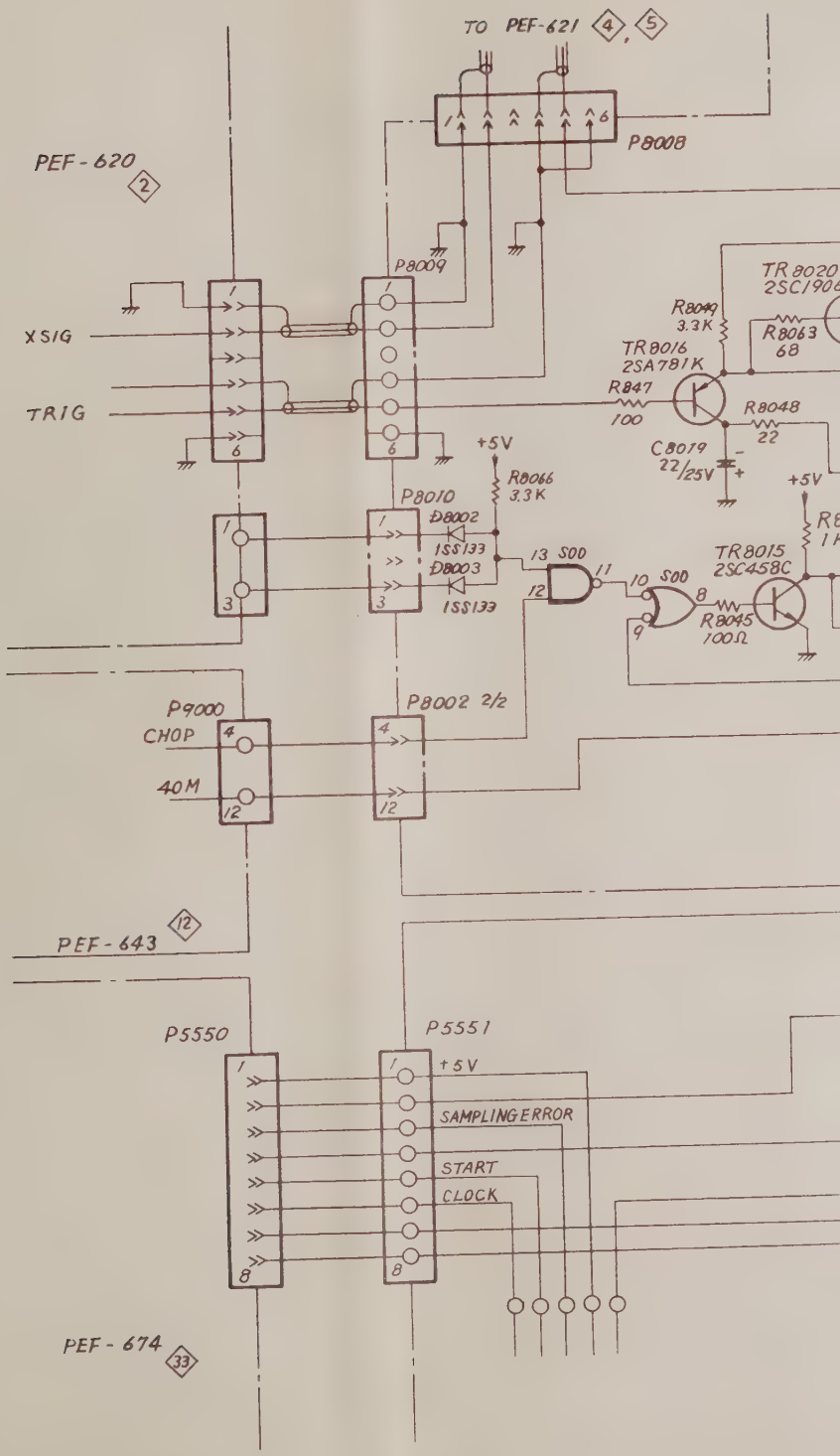


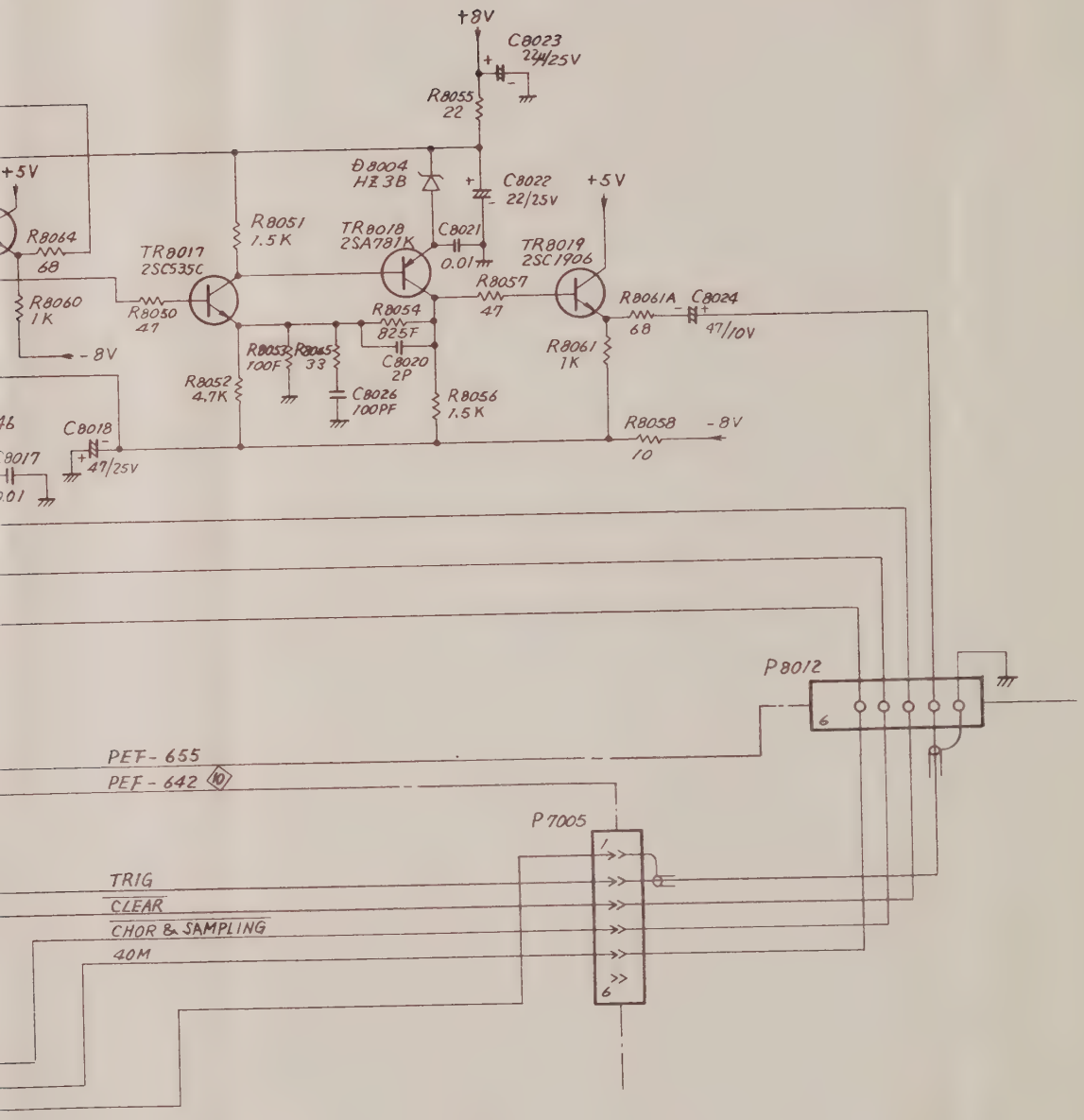
29 POWER SUPPLY 2 (PEF654)


R225 47K
IC216
LS74
P8001
+8V
+5V
-8V
8V
C8025 0.01
R63A 47
TR63 2SA1029Đ
- 32mA
4.38V
R76 470
R72 47
R75 3.3K
R77 47
C72 0.61
C77 3P
TR64 2SA1029Đ
R64A 47
R8001 470
R8002 47
C8001 0.01
TR201 2SC1906
3.13V 37.5mv/div
17mA
2.08mA
R208 221F
R213 866F
R203 182F
R205 560
R206 1K
R204 182F
R207 72K
C210 10/16V
R211 820
R212 820
C107 100P
R210 47K
R209 221K
R217 220
C217 10P
R214 86.6
TR202 2SC1906
P201
P211
TR8021 2SA781K
TR8011 2SA781K
P8004
R8067 2.2K
R8068 2.2K
Đ.L PEF-642
TR8022 2SA781K
C345 1000P
R345 47
R347 150
C338 33P
4.7V
+4V 30mv/div
R339 560
RV339 200
R341 10
R340 540
R337 10
C337
TR331 2SA781K
R336 120
R331 100F
R333 4.7K
R332 100F
R338 3.3K
CV337
R348 150
C346 1000P
R346 47
TR332 2SA781K
10.2mA
P301
P311
R8042 2.2K
PEF 620 2, 3

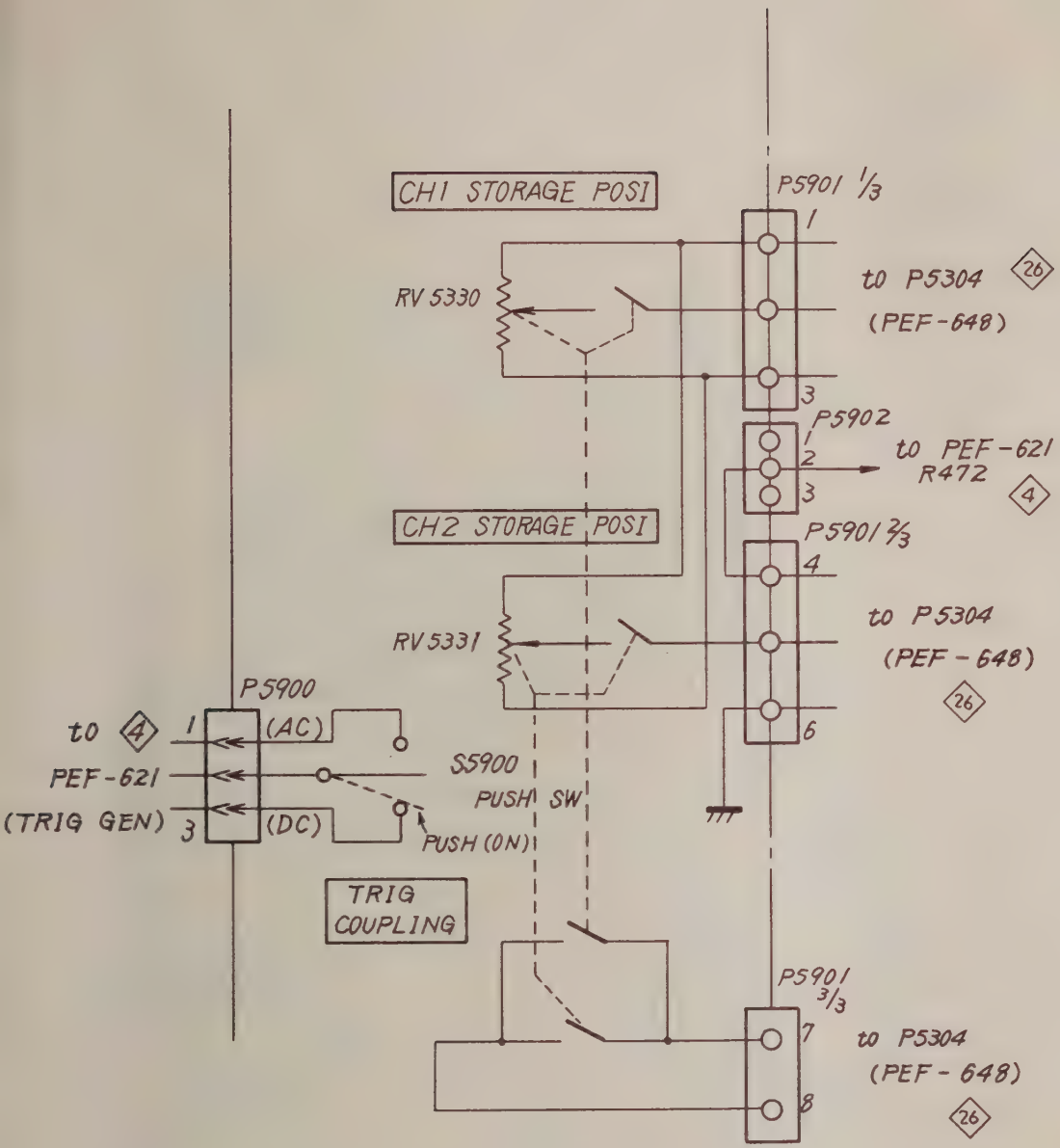


30 V SWITCHING CIRCUIT (PEF-655) 1/2

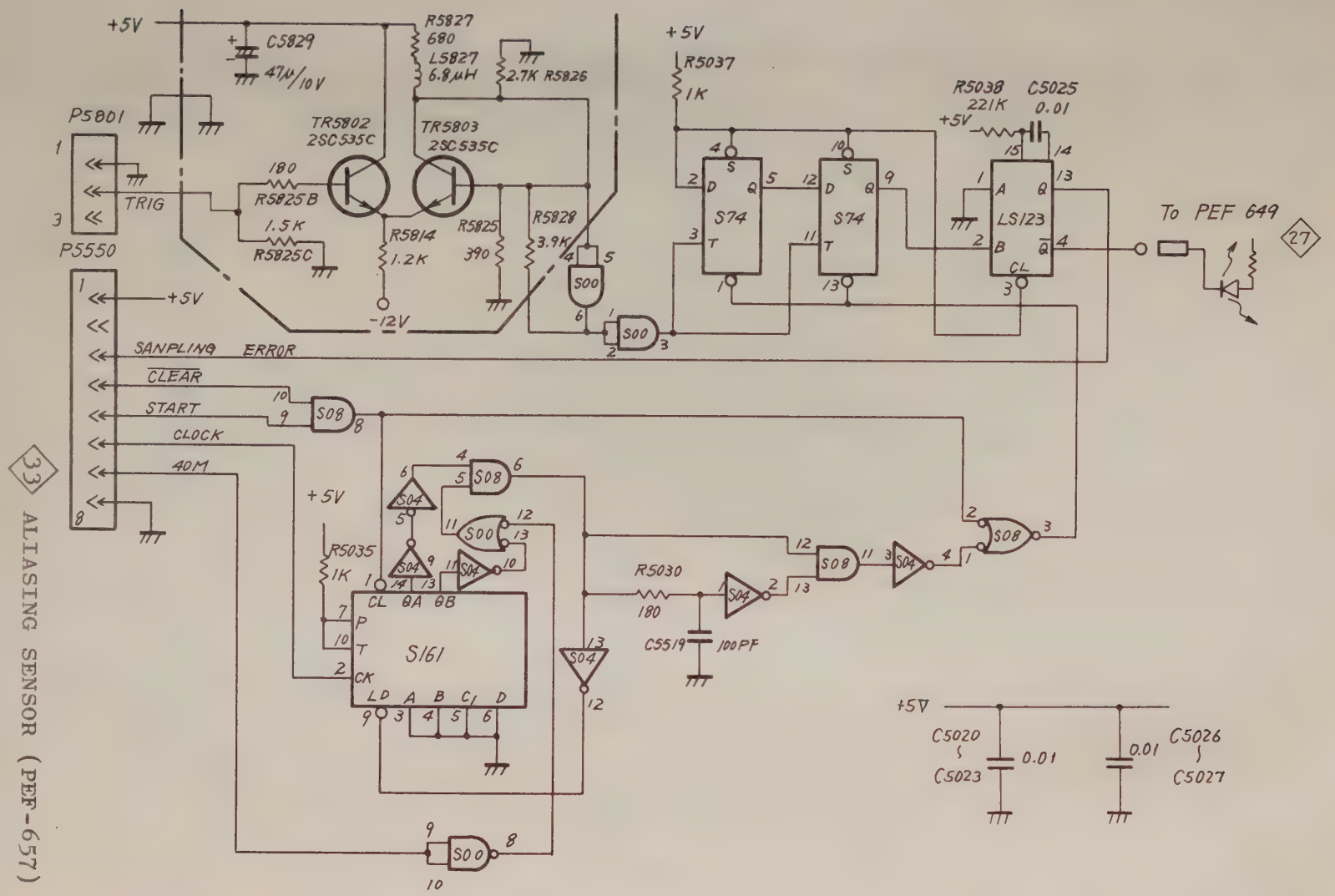

TO PEF-621 4, 5
P8008
PEF-620 2
P8009
XSIG
TRIG
TR8020
2SC1906
R8049
3.3K
R8063
68
TR8016
2SA781K
R847
100
R8048
22
C8019
22/25V
+5V
R8066
3.3K
P8010
D8002
1SS133
D8003
1SS133
13 S00
11
12
10 S00
8
9
TR8015
2SC458C
R8045
100Ω
P9000
CHOP
40M
P8002 2/2
PEF-643 12
P5550
P5551
+5V
SAMPLING ERROR
START
CLOCK
PEF-674 33

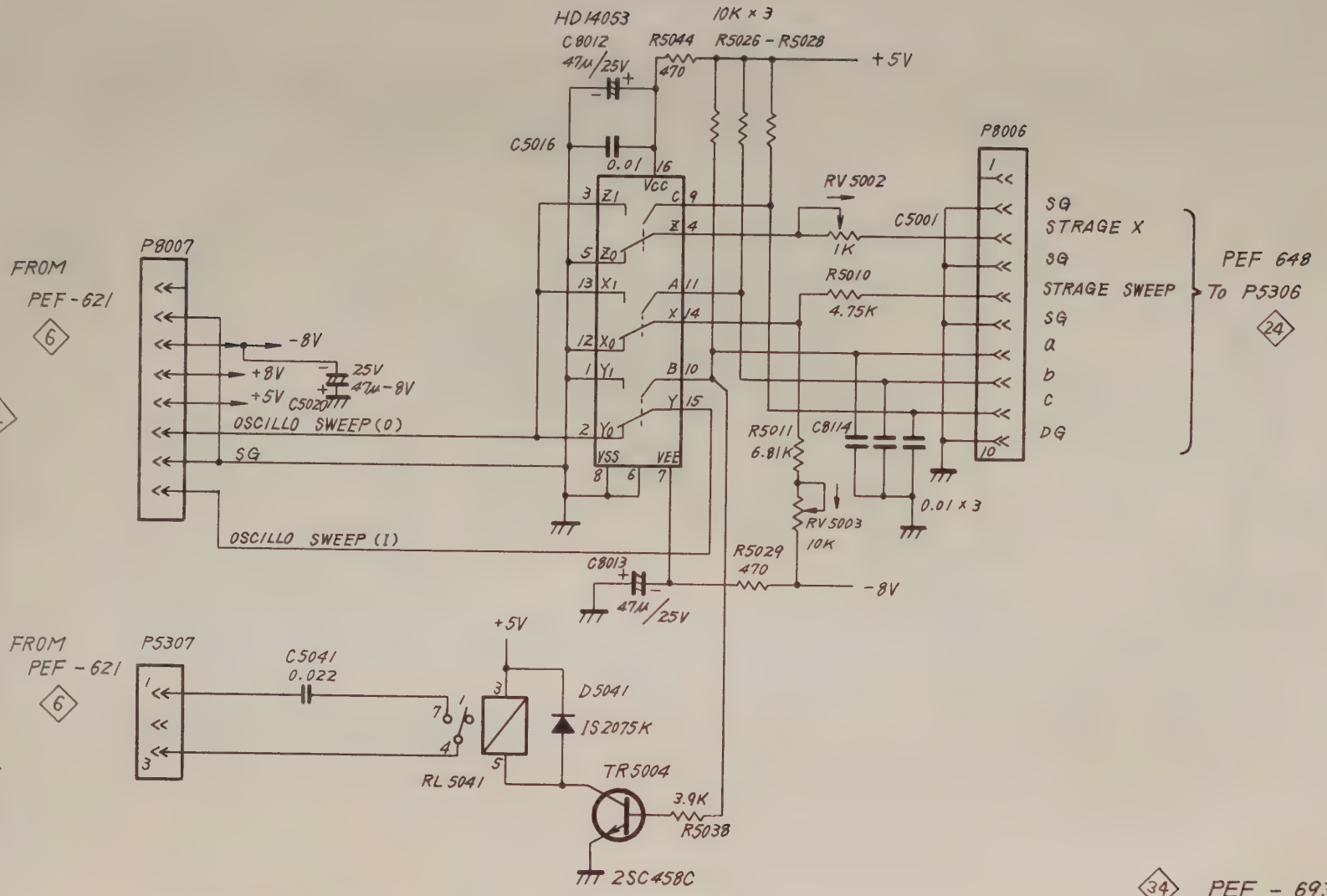


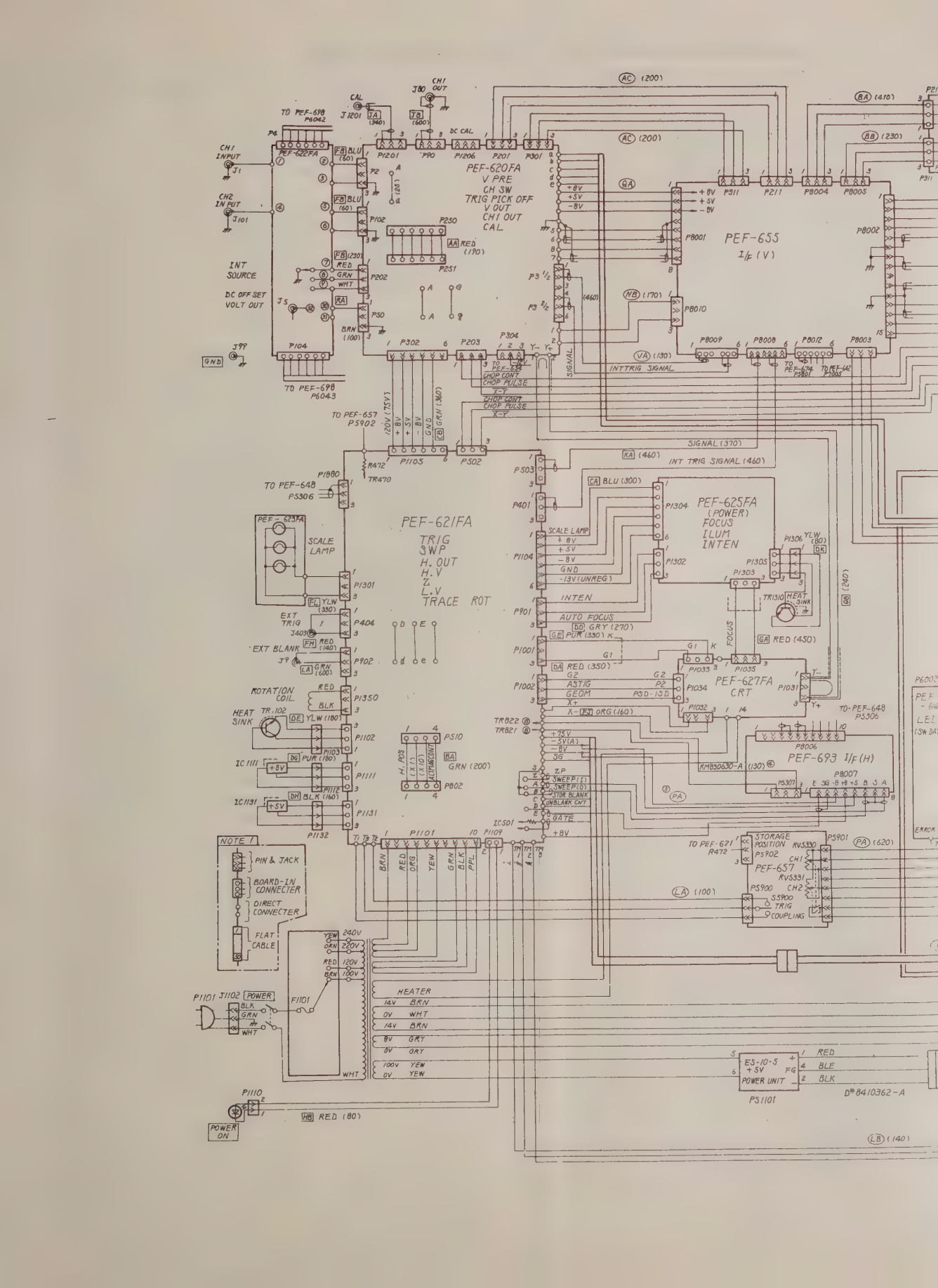
31 V SWITCHING CIRCUIT (PEF-655) 2/2

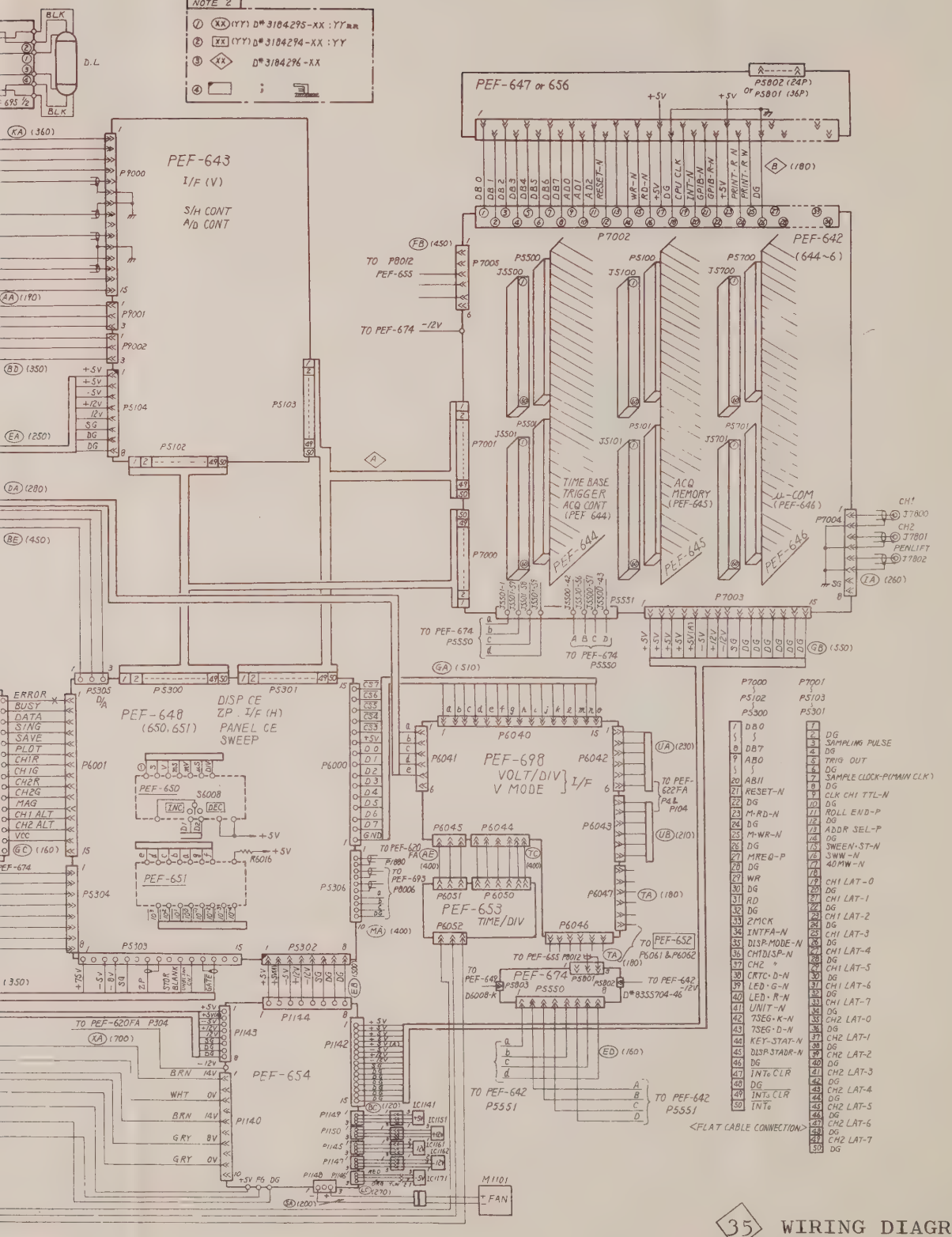


32 TRIG COUPLING & STORAGE V POSI (PEF-657)

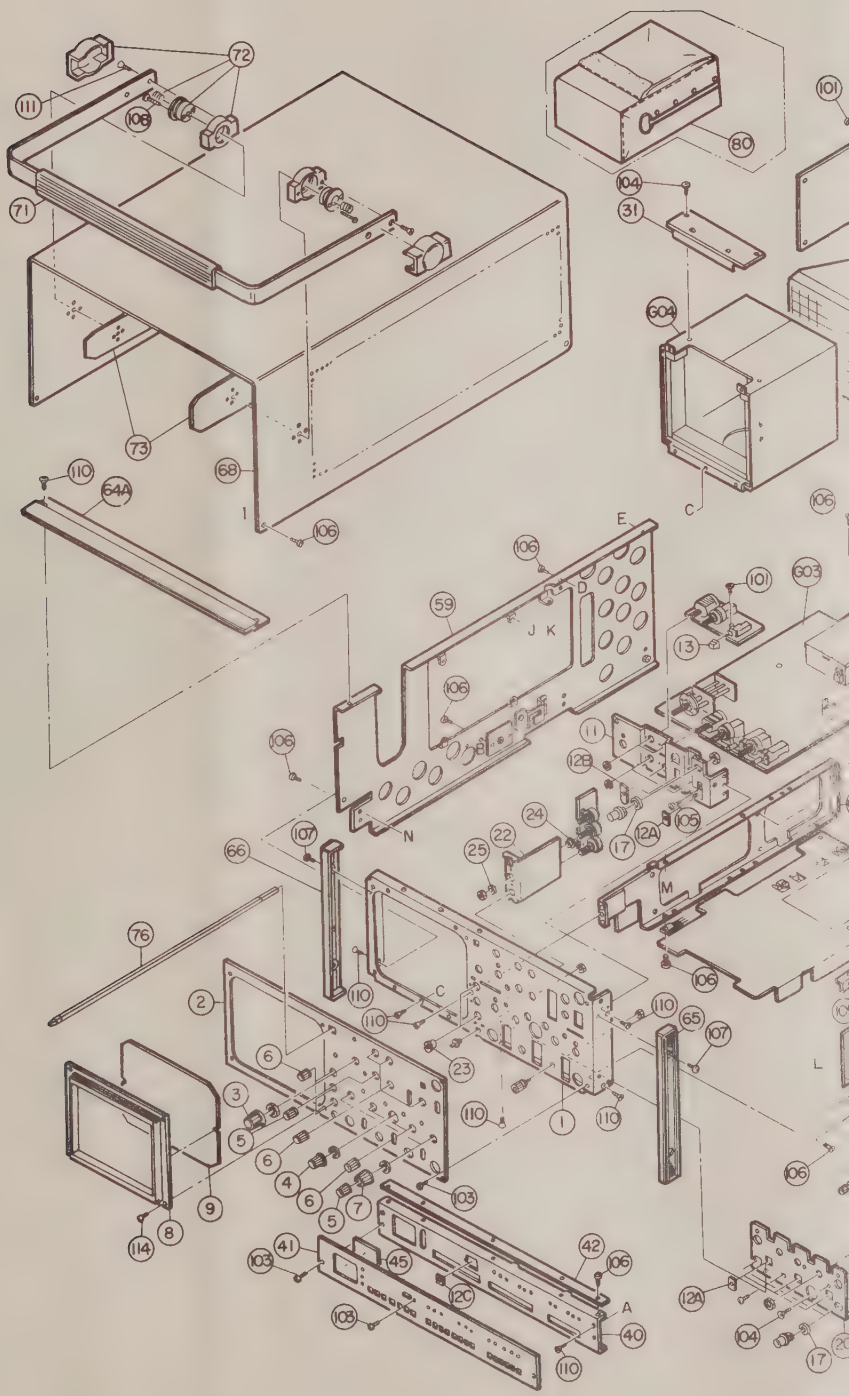

+5V
C5829
47M/10V
R5827
680
LS827
6.8μH
2.7K R5826
P5801
TR5802
2SC535C
TR5803
2SC535C
180
R5825B
1.5K
R5825C
R5814
1.2K
R5825
390
R5828
3.9K
TRIG
P5550
-12V
S00
SAMPLING ERROR
CLEAR
START
CLOCK
40M
S08
S04
R5035
1K
S161
CL QA QB
P
T
CK
LD A B C D
R5030
180
C5519 100PF
R5037
1K
S74
R5038
221K
C5025
0.01
LS123
To PEF 649
27
33
C5020 ~ C5023
0.01
C5026 ~ C5027

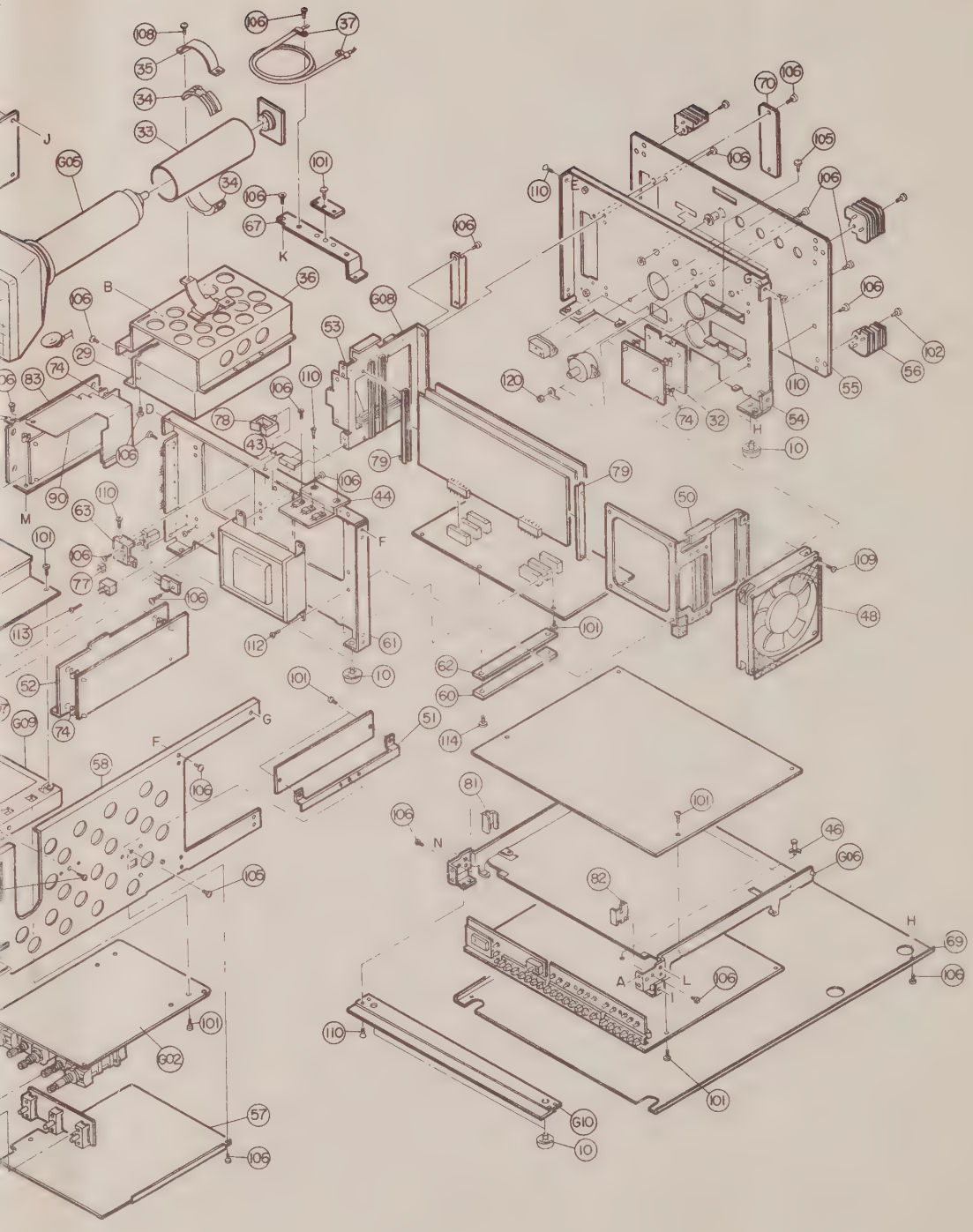

HD14053
C8012
47μ/25V
R5044
470
10K × 3
R5026 - R5028
+5V
C5016
0.01
16
Vcc
9
3 Z1
Z 4
5 Z0
13 X1
A 11
X 14
12 X0
1 Y1
B 10
Y 15
2 Y0
VSS
VEE
8
6
7
P8006
RV 5002
1K
C5001
R5010
4.75K
SG
STRAGE X
SG
STRAGE SWEEP
SG
a
b
c
DG
PEF 648
To P5306
24
FROM
PEF - 621
6
P8007
-8V
+8V
+5V
25V
47μ-8V
C5020
OSCILLO SWEEP (0)
SG
OSCILLO SWEEP (1)
R5011
6.81K
C8114
RV 5003
10K
0.01 × 3
R5029
470
C8013
47μ/25V
-8V
+5V
FROM
PEF - 621
6
P5307
C5041
0.022
D5041
1S2075K
RL 5041
TR5004
3.9K
R5038
2SC458C
34
PEF - 693
IF
34
H SWITCHING CIRCUIT (PEF-693)
151


PEF-620FA
V PRE
CH SW
TRIG PICK OFF
V OUT
CH1 OUT
CAL
PEF-655
I/F (V)
PEF-621FA
TRIG
SWP
H. OUT
H.V
Z
L.V
TRACE ROT
PEF-625FA
(POWER)
FOCUS
ILUM
INTEN
PEF-627FA
CRT
PEF-693 I/F (H)
PEF-657
PEF-671
ES-10-5
POWER UNIT
CH1 INPUT
CH2 INPUT
INT SOURCE
DC OFFSET VOLT OUT
SCALE LAMP
EXT TRIG
EXT BLANK
ROTATION COIL
HEAT SINK
INT TRIG SIGNAL
SIGNAL
AUTO FOCUS
INTEN
ASTIG
GEOM
STORAGE POSITION
TRIG COUPLING
POWER ON
HEATER
NOTE 1
PIN & JACK
BOARD-IN CONNECTER
DIRECT CONNECTER
FLAT CABLE



35 WIRING DIAGRAM


72
111
108
71
73
68
110
64A
106
80
104
31
101
604
C
E
59
J
K
106
101
603
13
11
12B
12A
105
17
24
22
25
107
66
N
M
76
2
110
C
23
6
3
5
4
7
9
8
114
1
65
103
41
45
42
12C
A
40
12A
104
17



MODEL V-6041
EXPLODED VIEW

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